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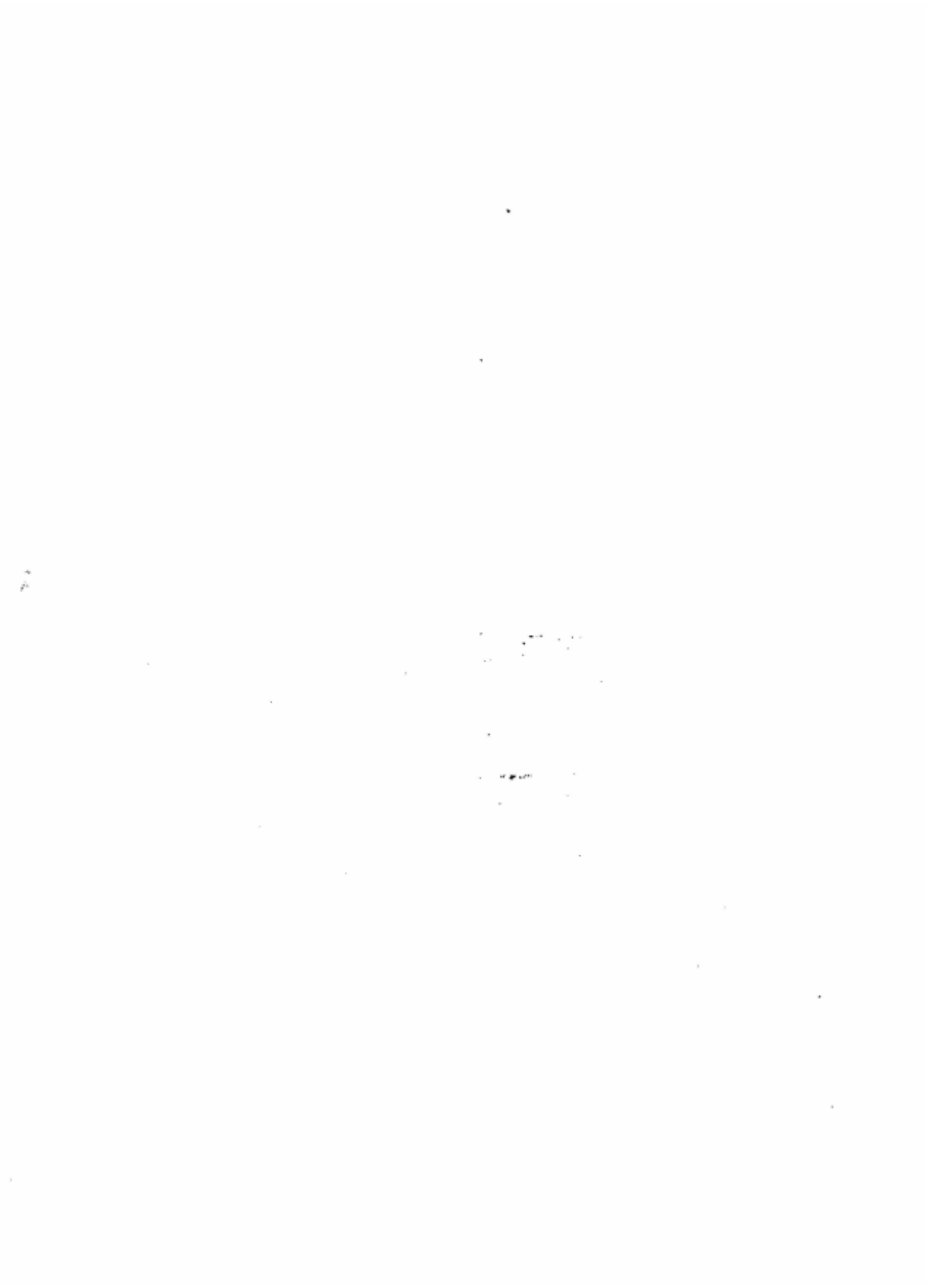
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EXCAVATION AT LA STARZA, ARIANO IRPINO

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In the eighteen years after its first discovery by Dr. I. Sgobbo in about 1920, rich prehistoric material was collected by quarrymen working the gypsum of the hill known as La Starza, Ariano Irpino, in the province of Avellino. It was very briefly published.¹ In 1956 the author carried out a survey of the site, the results of which appeared in these Papers the following year.² The report ended with a note that by then an exploratory season of excavation had already been carried out but that much more remained to be done. Further campaigns in 1960, 1961 and 1962 completed the immediate project^{3a}, so that although the site is far from worked out, publication should not be held up longer.

The 1957 season was financed by funds from the Museum of Archaeology and Ethnology (through the Crowther Beynon Fund) and Pembroke College, Cambridge, and my mother, Mrs. D. M. Trump. The remaining seasons' work was made possible by the generous backing of Mrs. D. I. Ainley. The excavation team, which differed each year,³ was made up of myself, students from the British School at Rome and Cambridge University, and other volunteers, many of whom made no claim on the excavation fund for their maintenance at the site.

The Authorities at the Superintendency of Antiquities of Naples, Professor A. Maiuri, Professor A. De Franciscis and Dr. O. Onorato, must be thanked for their generously accorded permission to work in their area. Help in many forms came from the British School at Rome, particularly from Mr. J. B. Ward-Perkins and Mrs. S. Ballance. The long and useful discussions with Dr. G. Buchner and Professor S. M. Puglisi must also be gratefully acknowledged. General M. Perrelli of Buonalbergo gave us considerable help in the later campaigns, in which we

¹ *Bullettino di Paleontologia Italiana* (hereafter *B.P.I.*) xlv, 1925, p. 153; *B.P.I.* xlviii, 1928, p. 38; *Rivista di Scienze Preistoriche (R.S.P.)* v, 1950, p. 98.

² The prehistoric settlement at La Starza, Ariano Irpino, *P.B.S.R.*, xxv, 1957, p. 1 sqq. This will be quoted as '1957' in references.

^{3a} A visit in March 1963 showed that apart from minor falls along the south-east lip there had been no significant alteration to the site as a result of the severe earthquake in the previous August. The quarry, however, continues to encroach on its northern tip.

³ 1957. Mrs. D. M. Trump, Miss B. Mason, Miss E. Owles, G. C. Duncan, I. M. Stead, L. Barfield, I. Cripier, H. Thrane, O. Mathews.

1960. Mrs. I. Ainley, Mrs. D. M. Trump, Mrs. V. Greer, W. Phelps, L. Barfield, F. Mallia.

1961. Mrs. D. M. Trump, Mrs. B. Gibson, Miss B. A. V. Wilson, W. Phelps, I. M. Stead, W. Bray.

1962. Mrs. B. A. V. Trump. The writer directed the work in each case.

used his village as our base. Sig. A. Gambacorta of Ariano kindly allowed the investigations to take place on his property.

The position and significance of La Starza were discussed in the 1957 article, and can be briefly recalled here. It is an outcrop of gypsum projecting through clay, its natural defences further improved by deep-cut streams isolating it on three sides. It lies within a few kilometres of the main Apennine watershed where this is crossed by the most important coast-to-coast route in the peninsula, all traffic along which it could closely control. Fig. 1 summarises the facts in map



FIG. 1. THE ARIANO PASS, CONNECTING CAMPANIA WITH APULIA

form. Sherds on the surface showed that its strategic value had been clearly realised, and that it had held a settlement from Early Neolithic to Iron Age times, probably without break.

The thirteen trenches cut were designed to locate and study stratigraphic deposits, so scarce in the peninsula, in order to clarify the prehistoric succession in this part of Italy. Since none gave a complete stratigraphy, the trenches yielding the material considered to be the earliest will be treated together first, the others following in correct succession.

I. Neolithic Deposits

Despite the wealth of Neolithic material in the surface collections, deposits of this period were elusive. They were found in four trenches, but unfortunately only a single phase was represented in each, and in two cases the deposit was unsatisfactory also.

a. Trench IV⁴

This was sunk on the hill-top to see whether prehistoric material survived in the area of the main settlement itself, fig. 2 (cf. 1957, fig. 2).

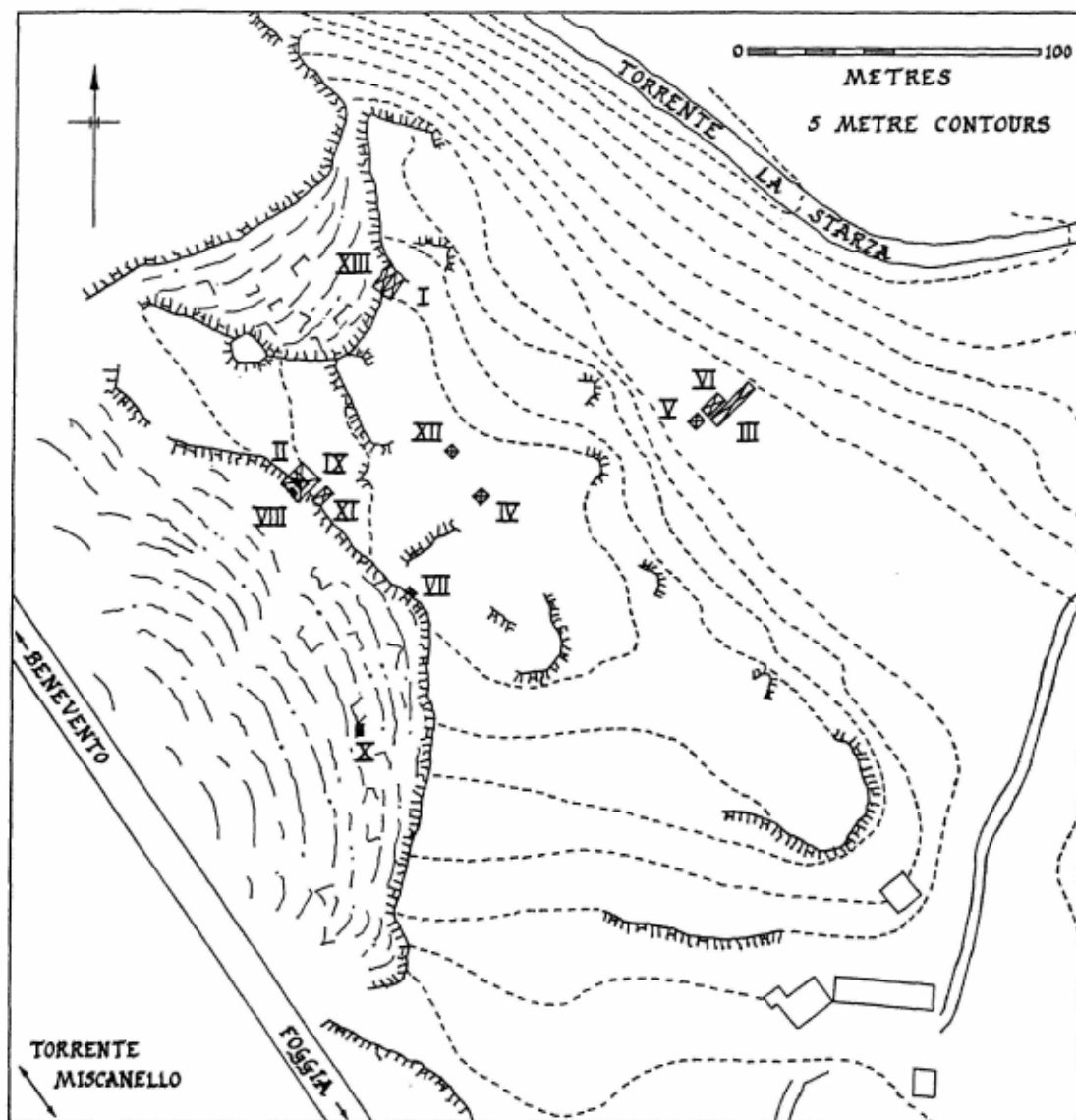


FIG. 2. PLAN OF LA STARZA TO SHOW THE POSITION OF THE TRENCHES

⁴ Trenches were numbered consecutively as dug, regardless of the age of the deposits they revealed. For reference purposes trenches I to IV were cut in 1957, V to X in 1960; IX was continued, XI and

XII begun in 1961, XIII in 1962. The first three seasons were each of three weeks' duration, the last of one.

The humus contained a very few sherds of Early Neolithic impressed ware only. Beneath it the ash of a hearth appeared in the north-west corner without associated remains, and a few sherds of fine burnished impressed ware in the north-east

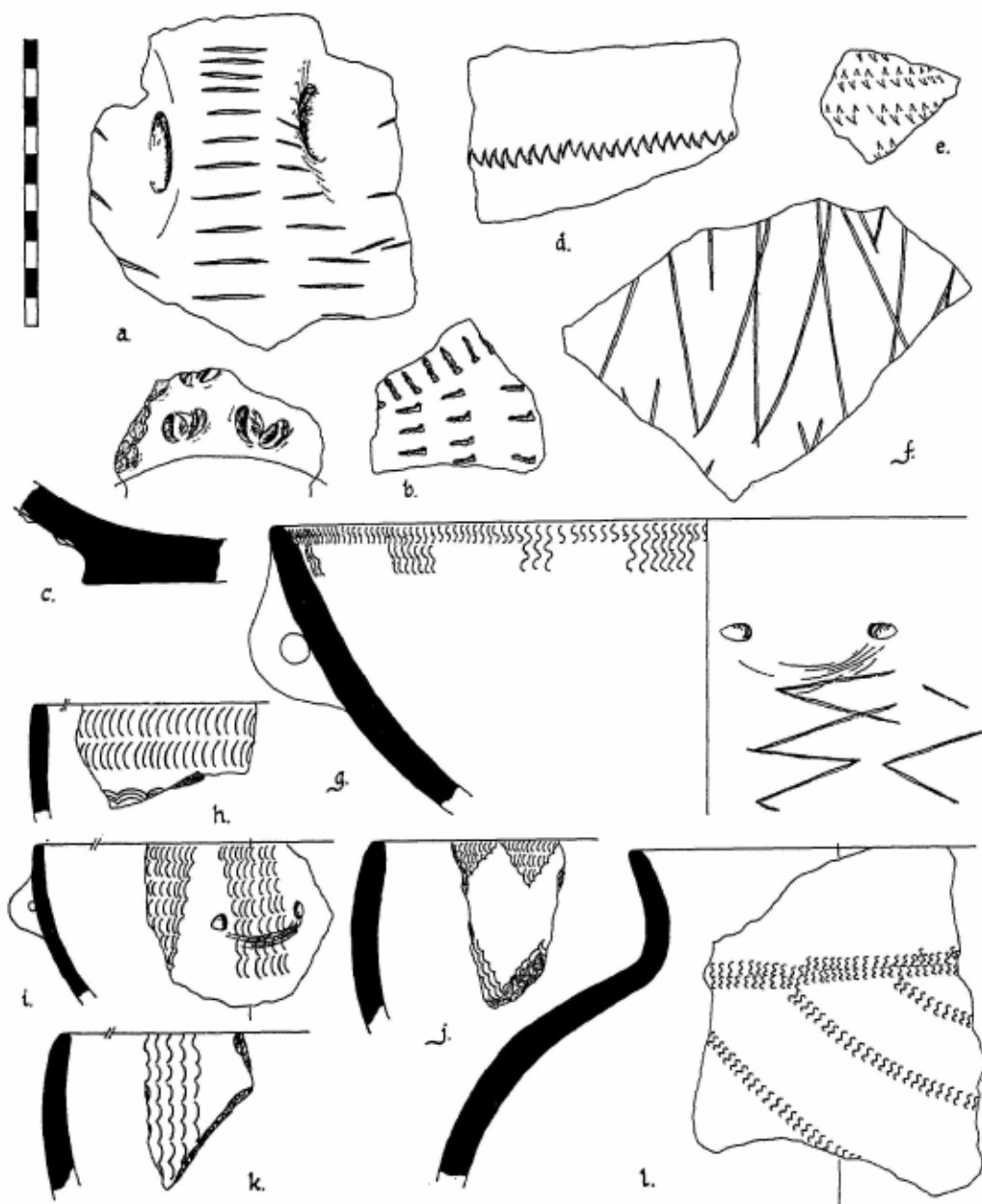


FIG. 3. IMPRESSED WARE SHERDS. *d.* II. 3; *f.* X; *h.* XI. 8, *k.* IX. 7; remainder sporadic.
The scale in all drawings of finds is in centimetres

corner. These lay at a depth of thirty centimetres immediately on a sterile level of hard grey earth which filled hollows in the decayed gypsum rock.

The sherds were characteristic, and testify to a phase when only this ware was in use on the site. Their testimony would be more reliable if they had been less scanty. No sherd was worth illustrating; fig. 3 (and 1957, fig. 3) gives the types.

b. Trench X

The richest Neolithic surface finds came from the southern end of the screes running down to the new road. As the rock reached the lip of the cliff here (except in the area of trench VII, *q.v.*) the sherds probably derived from rubbish-filled fissures exposed by the quarrying. There is nothing in the present topography of the site to suggest the caves postulated by Rellini.⁵ The only deposit located was 40 cms. thick, sandwiched between two slabs of gypsum at an angle of 80° from the horizontal, of which the outer had fallen away. Only its lowermost 1.50 metres could be safely examined.

This consisted of pure habitation material, grey with flecks of charcoal, scraps of bone and four small chips of flint. The sherds included 7 of impressed ware (2 with oblique stick impressions, 2 with irregular jabs, 2 of fine open bowls bearing C-impressed designs, 1 with intersecting soft-incised oblique lines) and 6 of scratched ware (all with hatched pendant triangles, in 3 cases recognisably on open bowls), illustrated in figs. 3 and 4. There were no painted sherds and, indeed, very few in the sporadic material from this side of the hill. The association of impressed, presumably late, and scratched ware is of interest and securely attested here. This would represent a phase later than that of the pure impressed ware of the last trench.

c. Trench I/XIII

The lip of the north-facing quarry (fig. 2) had offered the best hope of a stratigraphy, so the first trench was begun in that area. Trench XIII continued downwards from the outer lip of I. The combined depth of the two trenches was about 6 metres, but of the many levels in this only four were significant.

I 6-9, XIII 1-6. The last 4 m. before the trenches were abandoned consisted of a deposit varying in colour and consistency and sloping steeply, but with no noticeable change in its very scanty material. This lay in patches of dark earth with charcoal specks, probably washed in from above and incorporated in the yellow powdery, or green or chocolate-brown clay, the end products of the decay of the natural gypsum, and quite sterile. It included 3 coarse impressed, 2 fine C-impressed, 8 soft incised, 2 fine scratched, 1 heavy scratched, 4 dark on buff painted, 1 red and white on buff and 15 undecorated dark polished sherds.⁶ Though poor and in dubious association, there is nothing here later than Middle Neolithic,⁷ yet the difference from trench X, particularly the appearance of painted wares, implies a difference in age too.

⁵ *B.P.I.*, xlv, 1925, p. 153.

⁶ This includes sherds picked from the undisturbed face in 1956.

⁷ Cf. the La Quercia phase in Bradford's Tavoliere material, being prepared for publication by

the writer; see *Antiquity*, June 1950, p. 84. A possible exception is the one polychrome sherd, which perhaps goes better with the fourth, Passo di Corvo, phase.

I. 5. 10 cms. This deposit was capped immediately by a thin continuous clay level beneath extensive black hearth material in which lay three decorated Apennine sherds. One had cut-out S's, two a dotted meander.

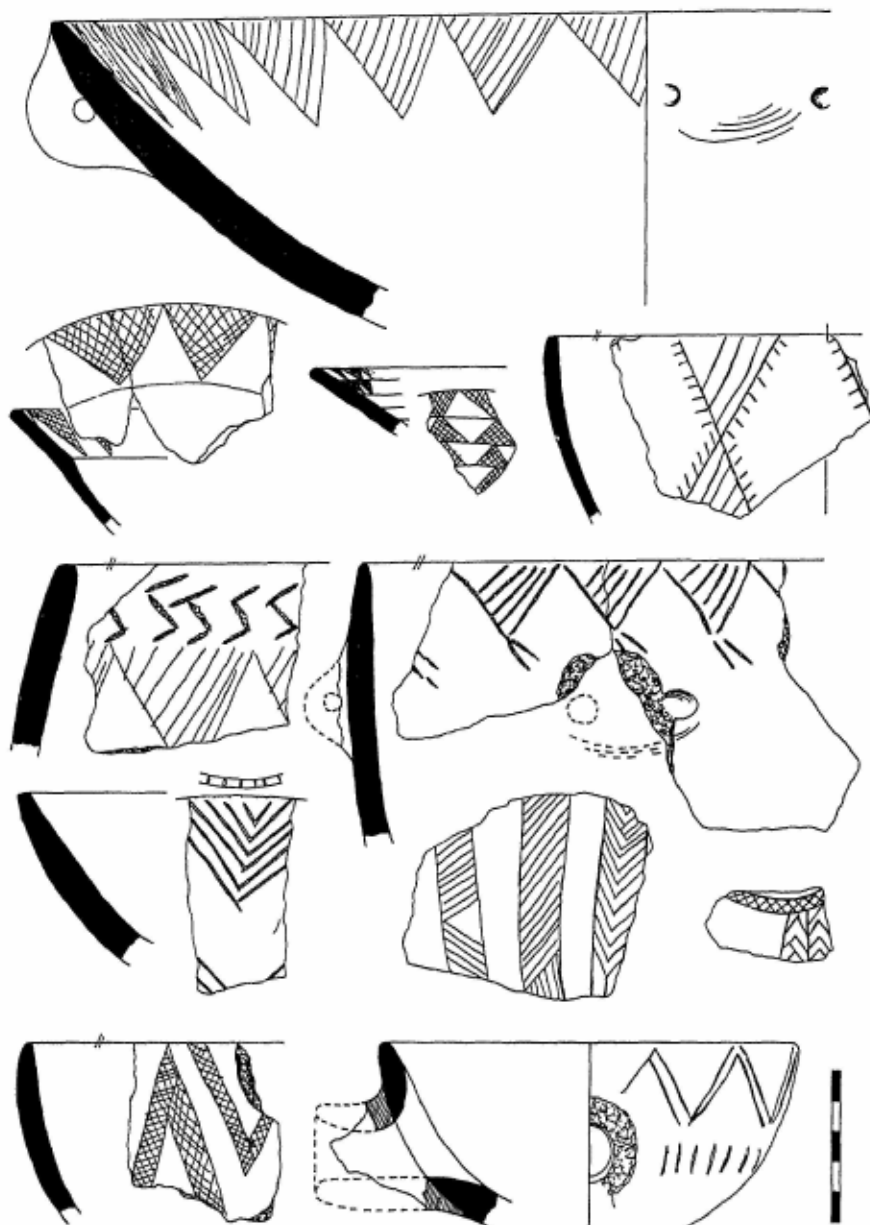


FIG. 4. SCRATCHED WARE SHERDS. *b.* IX. 3 and IX. 9; *c.* IX. 7; *d.* IX. 9; *e.* and *f.* X; *g.* XIII. 6; *j.* IX. 8; remainder sporadic

I. 2-4. 1-20 m. A poor deposit dated to the last few centuries B.C. consisted of wash from above and decayed gypsum similar to the lowest level. Only four

sherds were recognisable, a Neolithic one with two scratched V's, part of an Apennine tongue handle, a sherd with an Apennine dotted band surrounding a knob, and substantial fragments of a part-burnished wheel-turned jar neck, fig. 22*h*. This last finds close parallels in vessels of the third century B.C. on Lipari, but looks most odd here. It is the latest dateable sherd recovered from the site.

I. 1. Recent humus. It contained poor Apennine sherds and two corroded fragments of iron.

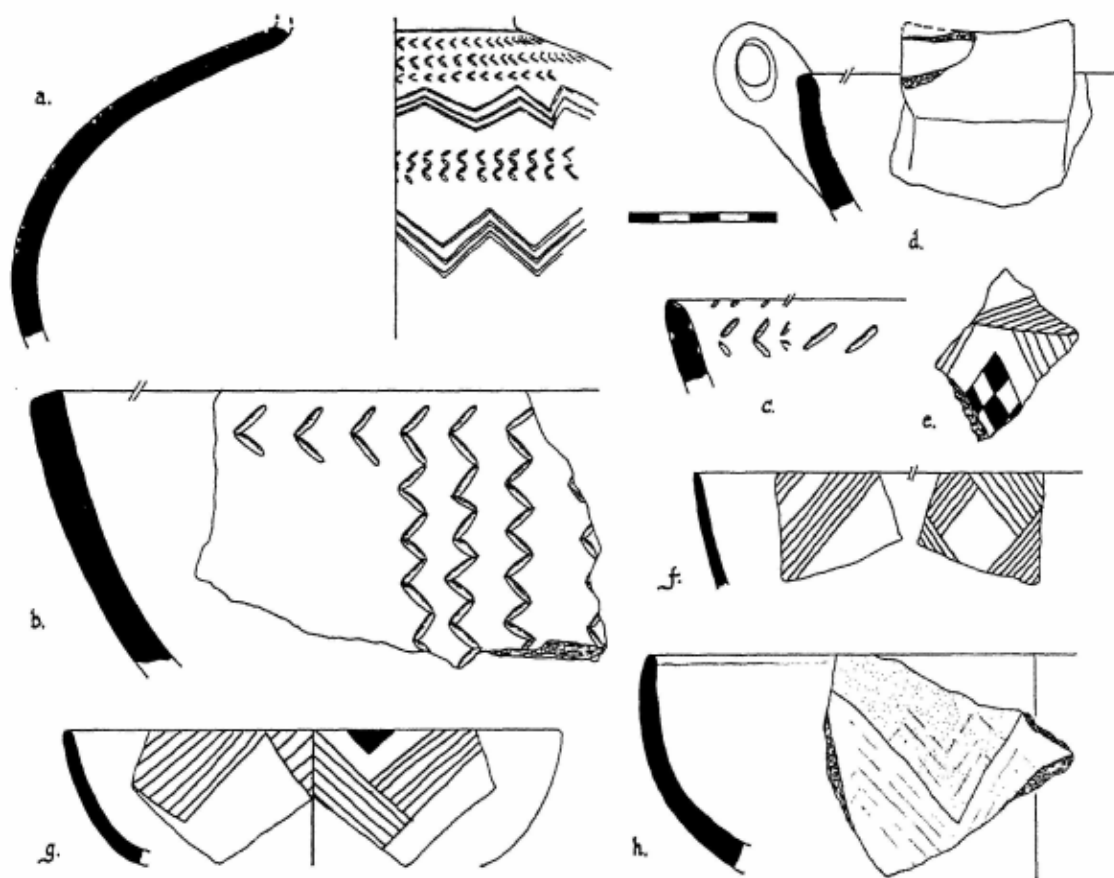


FIG. 5. PAINTED AND OTHER WARES. *a-c* cf. Fiorano; *d*, cf. Diana (II. 3); *e-g*, cf. La Quercia; *h*, cf. Passo di Corvo. Sporadic

d. Sporadics

In view of the poverty of Early and Middle Neolithic stratified material, it has been thought advisable to draw the illustrations from the surface collections and sporadics in later levels. These give a much wider range of better-class sherds than would otherwise be possible. Certain of them are important for the discussion below on the connections of the Ariano material in other regions. Figs. 3, 4 and 5 are largely self-explanatory.

II. Late Neolithic—Copper Age

Late Neolithic was not found on the surface at all but did appear in the lowest level of the trenches on the eastern cliffs. It seems more logical to include it with the Copper Age from these trenches rather than with the Neolithic from elsewhere

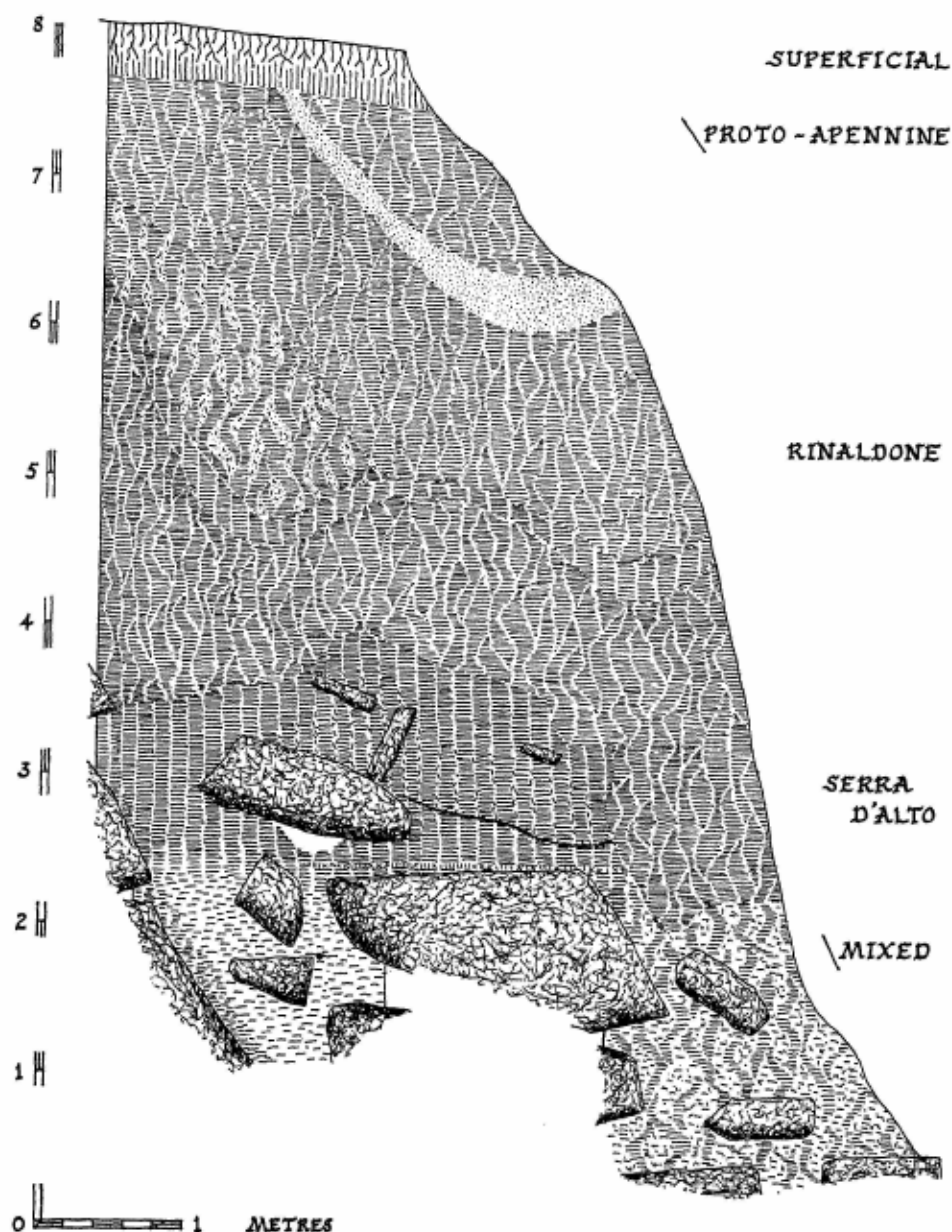


FIG. 6. THE SOUTH-EAST FACE OF TRENCH IX

on the site. The Copper Age material was found in great quantity in the lip of the cliffs overlooking the road at the northern end during the survey.

Trenches II/VIII/IX/XI

Trench II measured 3 metres along the cliff edge with a depth of 1 to 2 m. due to the irregularity of the lip, increasing as the cliff face sloped out. At 2.50 m. it hit rock, and a narrower strip, 75 cms. deep, continued a further metre.

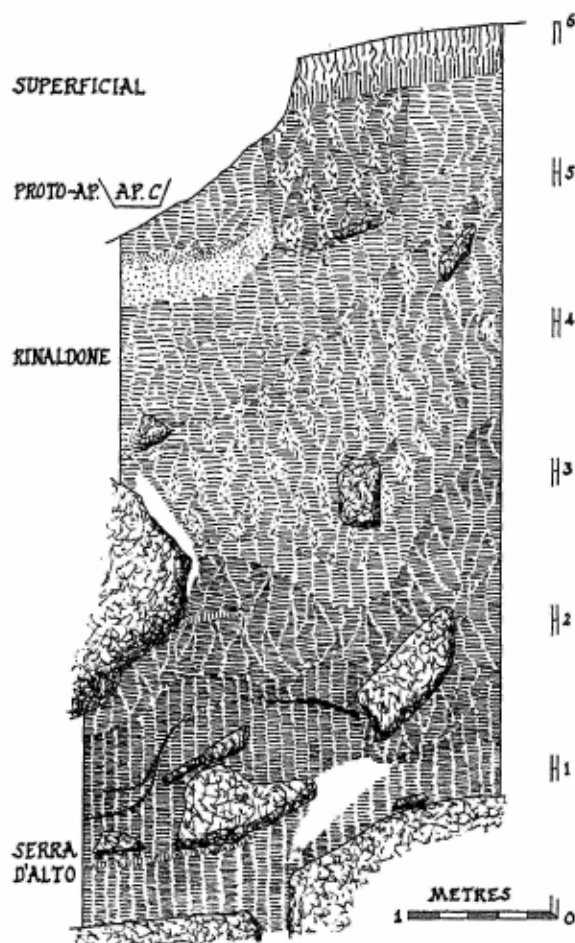


FIG. 7. THE NORTH-WEST FACE OF TRENCH XI

In 1960 part of the face of the cliff below trench II was cut back vertically to reveal the levels and called, somewhat misleadingly, trench VIII. Trench IX in effect enlarged II to 4 m. square at the surface.⁸ It descended to the rock which was revealed as a large detached block. It then continued down beside this to a total depth of 2.65 m. from the surface in its eastern 2.50 m.

⁸ Trench II had widened from 3 to 4 metres by the collapse of its south-east wall due to rains in the intervening three years. To it was added a 2 m.

strip on the uphill, north-east side, making the 4 m. square.

In 1961 trench IX was continued over the same area until it reached immovable rocks at a depth of 6.80 m. (fig. 6). Near the cliff face further progress could be made in front of these rocks, incorporating trench VIII. Shattered rock with air cavities between was reached at a total depth of 7.50 m. At the same time, trench XI (fig. 7) was cut to the south-east, leaving a 1.50 m. balk. It increased from 2×1.50 m. at the surface to 2×2.50 where it was abandoned on rocks 5.50 m. lower down. The two trenches told the same story and can therefore be considered together.

IX. 10. This lowest absolute level, at the lip of the trench, was mixed and unreliable, and its stratigraphic position relative to levels 9 and 11 uncertain. Its contents were as follows:

- i. Impressed ware was represented by 4 sherds, 1 coarse impressed, 1 fine C-impressed, 2 soft-incised.
- ii. There were two fine and one coarse scratched sherds.

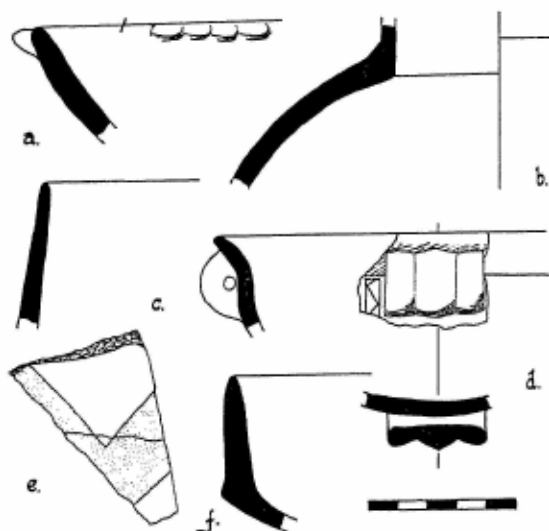


FIG. 8. PRE-SERRA D'ALTO SHERDS FROM LEVELS IX. 10 (a-c) and 11 (d-f)

- iii. Of a thin polished buff ware were one sherd from a bottle-neck, one from the rim of a bowl (fig. 8c), one showing a repair hole, and 12 others. This ware is closely paralleled at Passo di Corvo near Foggia.
- iv. Two sherds have a bright red-to-crimson polished surface recalling the Diana complex, though the shapes are unfamiliar. They are a bottle shoulder and the lip of a small straight dish on which are set four pellets (fig. 8a and b).
- v. Three sherds though differing between themselves are of types all represented in IX. 9, and of clear Serra d'Alto affinities. A small sherd of buff polished ware is painted with bordered zigzags—the 'linea a tremolo sottile marginato' of Italian writers. Two jar necks of coarser brown-black ware have characteristic square lips.

- vi. The bulk of the material was of Rinaldone type, as in IX. 7, etc. Only one sherd (fig. 11f) requires special mention, a subcutaneous lug in grey-black polished ware.
- vii. A long and very fine blade of pale buff flint showing signs of use came from this level (fig. 13r); also three flakes of obsidian, two Lipari, the other Pontine.
- viii. Animal bones were few⁹ and owing to the mixed nature of the deposit not very significant. For the same reason it is a pity that one of the two groups of human skeletal material¹⁰ found should have been here. The frontal and facial skull bones were present, also the upper part of both femora and part of the pelvis. Their size, the unfused epiphyses of the leg bones and the state of eruption of the teeth suggest a child of some eight years.

IX. 11. In soft earth in the crannies of tumbled rocks at the back of the trench were a handful of sherds showing far less evidence of earlier or later contamination. One was the rim of a lipped bowl bearing a low perforated tripartite lug of Serra d'Alto form (fig. 8d). Beside the handle was a bordered zigzag incised into the polished brown surface. Two sherds from a single vessel (fig. 8e) were of thin orange-buff ware painted with broad bands of grey-white, in one forming a zigzag. One grey to orange polished sherd was of a dish with a vertical wall separated from the body by an exaggerated carination (fig. 8f). In addition there were 3 featureless thin hard buff sherds, 1 black and 1 coarse dark varicoloured.

IX. 9, XI. 11. The rocks and soft earth in IX were overlain by a thick, 1.20 m., level of harder deposit of dark brown clay, to which corresponded the lowest level in XI. The two can certainly be treated together, as sherds of two vessels were scattered between the two trenches. Sherds were few except in a narrow band marked on the sections (figs. 6 and 7). In this lay the shattered remains of several restorable vessels. Apart from obvious strays, 3 impressed sherds in XI, a few Rinaldone sherds in a limited area at the back of IX, and the probable strays, 2 scratched sherds in IX (fig. 4, b and d), this material can be accepted as a closed association. Four wares were represented.

1. Fine buff or pink ware painted in brown, purple or black, commonly with a zigzag between parallels, the 'linea a tremolo'. Three vessels (pl. I and fig. 9) were restorable.

A small deep egg-shaped goblet (fig. 9f) in very thin buff ware bore an all-over pattern of bordered zigzag chevrons ending in blobs, black-painted. Its base was only slightly flattened and its lip and handle, if any, were missing. Another unusual vessel, a large cup of fine pink ware, had a pinched lip (fig. 9g). The surviving sherds do not support the attractive suggestion that it was square-mouthed, but rather that there was a single pinched spout. On one of the long sides are traces of a missing handle of uncertain form. A black-painted decoration composed of bordered zigzags, sometimes the borders only,

⁹ Sheep/goat 22, cow 21, pig 4.

¹⁰ The other, in II. 3, p. 17 below, was also in a mixed level.

¹¹ Though this was a mixed level (see below) it contained nothing later than Copper Age, so can be included here.

and solid triangles covers the exterior, a single zigzag running inside the lip too. The third vessel was a globular jar with broken neck and two handles, of pink ware with a polished red to grey-buff surface (fig. 9*d*). The handles

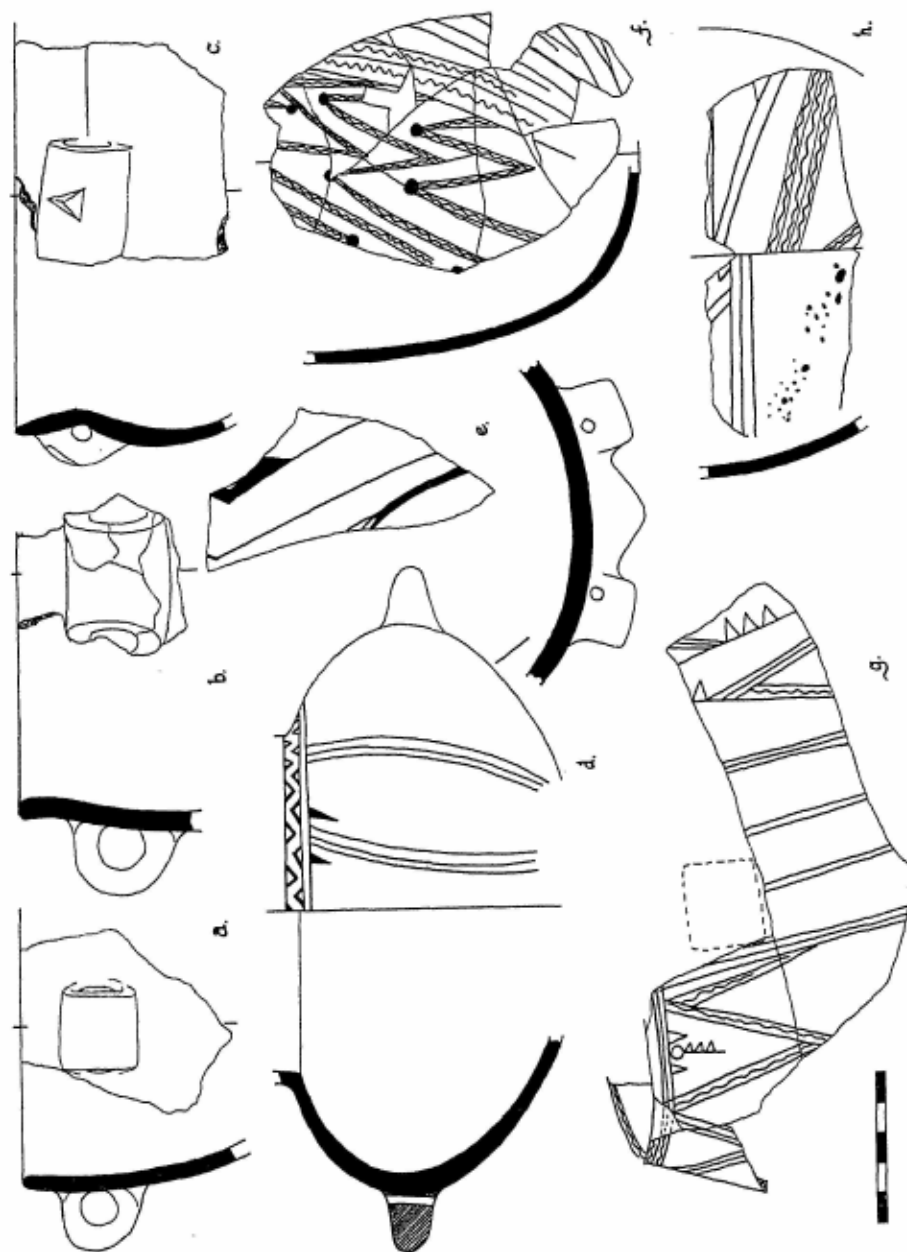


FIG. 9. BELLAVISTA (*a, b*) AND SERRA D'ALTO SHERDS FROM IX. 9 and XI. 11 (*c, h*, part of *g*)

were basically horizontal ledge-lugs divided into three parts, a triangular centre between two vertically perforated rectangular ends. A band of opposed triangles

round the neck left a reserved zigzag, below which groups of three lines descended over the shoulder, some with long pendant triangles on either side.

Two 'sugar-bowls' (fig. 9*h*) were represented by sherds but insufficiently to be restored. Both were decorated inside and out, the bordered zigzags again featuring prominently. Two other sherds bore a similar painted design, a third was more distinctive (fig. 9*e*). This had part of a large diagonal meander. A few undecorated buff sherds could be from either painted vessels, these having missed, or later lost, their paint, or else from a truly undecorated ware like those mentioned from IX. 10.

2. The second ware was dark, brown or black, highly burnished and undecorated. The only certain shape was a globular bowl with a straight slightly out-turned neck. One had its lip heavily thickened. This and a second bore traces of a missing handle. A third had its handle complete, and enough of the wall to restore (fig. 9*c*). The handle consisted of a semi-cylindrical block in the angle of the neck, with conical perforations later cut or drilled from the ends to meet in the middle. A triangle of clay was then excised from its centre. From similar vessels came a rim sherd and a low handle with a small perforation and the familiar Serra d'Alto tripartite outline, a swelling centre between projecting but flat-topped sides. A carinated bowl was represented by an exaggerated carination like the one from IX. 11, but its rim was missing.

3. A few coarser brown-black sherds coming from larger cups and jars were distinguished from other wares by a markedly square lip. Little further can be said of the three rims and other indeterminate sherds found.

4. Important again were two restorable cups (pl. I and fig. 9, *a* and *b*) each bearing two cylindrical or slightly saddled handles attached below the rim. No attempt had been made to smooth the handles into the profile of the pots, so that from the front they form uncompromising rectangles and from the side an O rather than the more usual D. Their connections are clearly with Bellavista, Taranto.

Of stonework, there were two axe amulets of dark green stone (fig. 13, *i* and *m*), small chips of Lipari and Palmarola obsidian, one each, and twenty flakes or chunks of flint.

II. 3 (1), 4-11, VIII, IX. 2-8, XI. 6-10. The bulk of the material from all these trenches fell into a single phase in which there were no cultural sub-divisions. Sherds from its top could not be distinguished singly or as a group from those at its bottom, 4 metres below. A few individual pieces were strays, either from earlier deposits on the site, of little further interest, or from other parts of Italy, to be treated more fully below. Otherwise it forms a single homogeneous group representing the domestic refuse of the La Starza settlement throughout the Copper Age. It is closely linked to the Rinaldone Culture, found in tombs from Benevento to the borders of the Toscana, by the shapes of certain of its vessels, the 'bottiglia' and the subcutaneous handle, and by its arrowheads. Differences, often considerable, can be simply explained by its being domestic, not funerary.

The pottery (fig. 10) tended to be very restricted in shape. Only seven forms could be clearly separated, and these varied little within themselves. There was an interesting correlation between shape and ware.

By far the commonest, 54.2% of the total,¹² was an open tronco-conic dish with a simple lip. The size varied widely; the shape was remarkably uniform, apart from slight differences in angle and an occasional beaded lip. No example had a handle; low bosses and knobs were uncommon, perforated ones rarer still. The ware was invariably fine, burnished and of a dark colour, brown, black or dark grey.

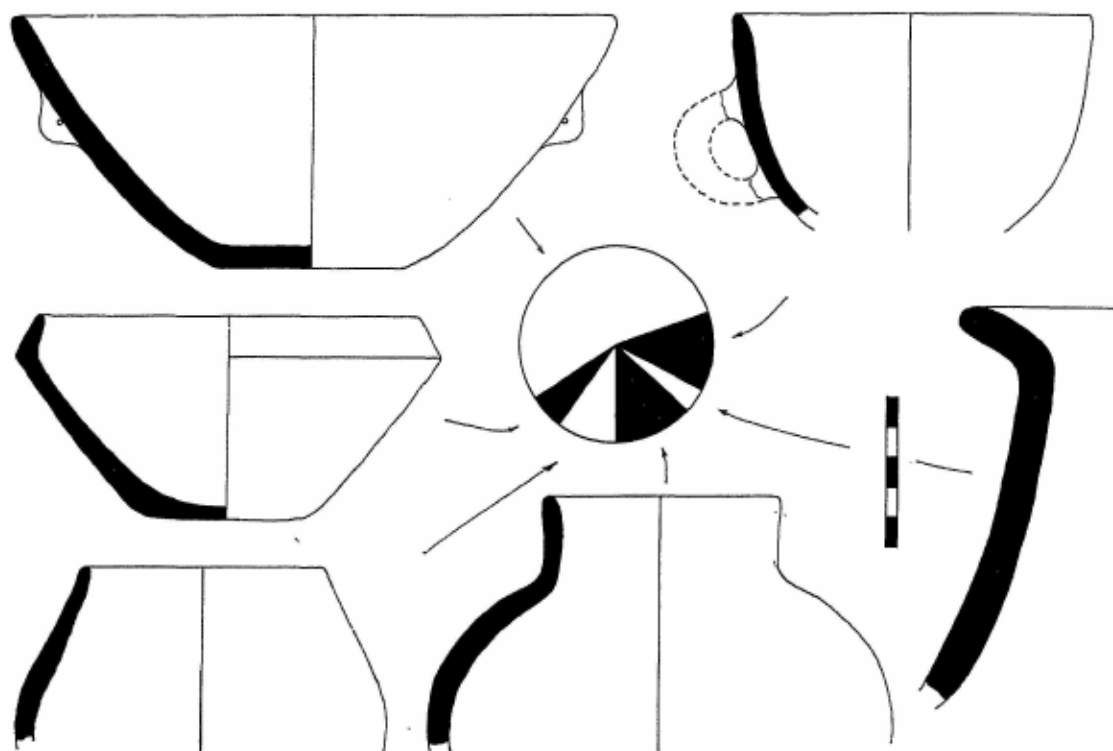


FIG. 10. RINALDONE WARE, PROPORTIONS OF THE MAIN SHAPES. Bottle IX. 2; handled cup IX. 7; rest IX. 8

A much heavier vessel had a similar profile, being distinguished by its thicker walls, heavy handle and, above all, much coarser ware. To this class belonged 12% of the sherds.

More like the dishes in ware were open carinated bowls, 6%. Their necks were either straight or, less commonly, slightly concave. These again had no handles. Their ware was almost invariably black.

A less clearly marked form was a deeper dish or bowl with a vertical or curved lip, again without a handle. The ware was more variable too. This accounted for a further 9.9%.

¹² The figures are based on over 2,000 identifiable sherds.

The smallest type, in size and number, was a coarse single-handled mug, 1.1%. In the diagram (fig. 10), it is included with the coarse handled bowls, but it is illustrated separately in fig. 11*e*.

The commonest of jar forms, with 13%, was the 'bottiglia', a globular vessel with a short vertical neck more or less separated from the shoulder. Strap handles on the shoulder were frequent, subcutaneous ones rare. All were of fine burnished ware, usually red or yellow. A few were black, and these were noticeably smaller.

The remaining 4.1% were jars with everted lips. Their ware tended to be coarser and heavier by reason of their much larger size. A few had a cream or buff slip and traces of painted panelling in dark red.

Associated with this Rinaldone complex were sherds of three other Copper Age groups in the peninsula (fig. 12).

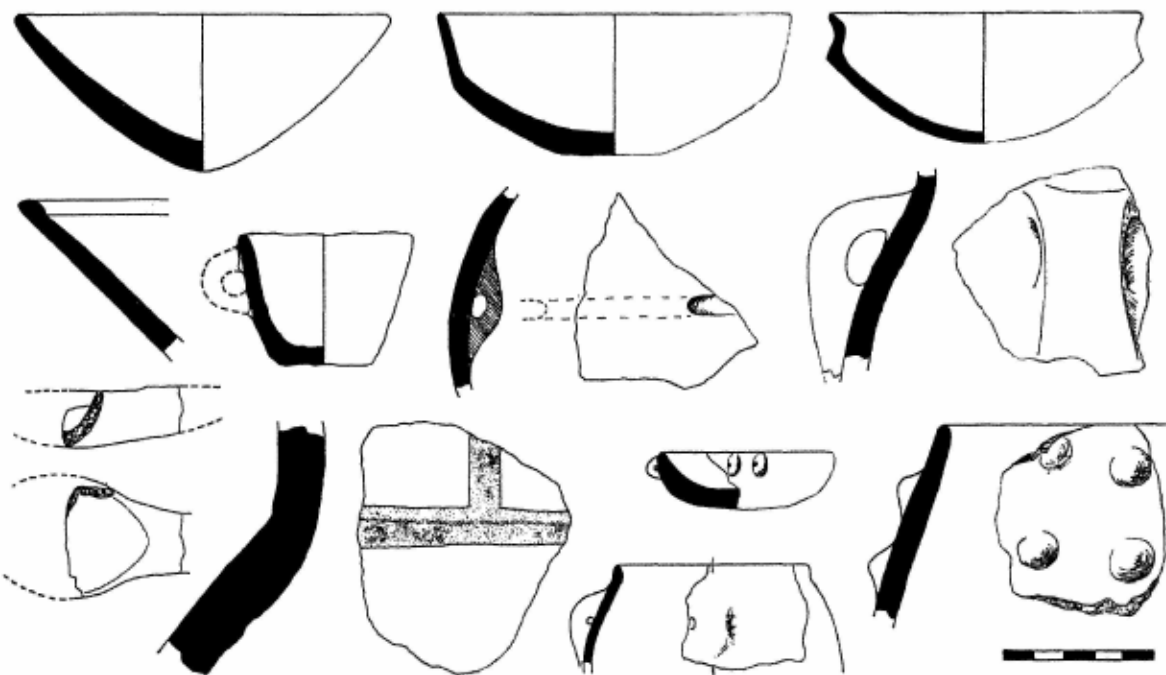


FIG. 11. OTHER RINALDONE WARE FORMS. *a*. II. 6; *b*, *d*. and *g*. IX. 8; *c*. and *j*. IX. 7; *e*. XI. 9; *f*. IX. 10; *h*., *k* and *l*. IX 2; *i*. II. 1*e*

In XI. 8 was half of an unusual vessel. Its square shape hints at the culture of Gaudio, but it is no more than a hint. Apart from a sporadic sherd from an insloping bottle neck bearing groups of four thin horizontal grooves, there is nothing else pointing in this direction. This is surprising in view of the fact that there is a Gaudio-type cemetery at Mirabella Eclano, only 22 km. away.

Links with Lipari, to which the obsidian (see below) bears witness, are confirmed by a number of sherds, bearing the characteristic corrugations or, less commonly, other deeply pattern-burnished designs. They were found in II. 3 (9), II. 4*b* (1), IX. 5 (2) and XI. 8 (6), that is in middle and upper levels only. As the obsidian occurred throughout this may be accidental.

Finally a single small sherd, together with three more from II. 1e, witnesses to contact with the north, Conelle-Ortucchio. All three bear designs of jabbed bands characteristic of that culture. The undisturbed sherd was in IX. 4.

Other uses for terracotta were for spindle-whorls (fig. 14*f-i*) eight examples of cylindrical, oval or tronco-conic form, coarse discoid loom-weights (14*k*)¹³ and three spoons.

Besides the pottery there was a fairly rich stone industry, mostly in flint (fig. 13).¹⁴ Simple blades were much the commonest, followed by retouched or deliberately blunted examples, some perhaps used as scrapers. One was clearly recognisable as an awl. Arrowheads were fairly plentiful in a wide variety of shapes, 13 barbed

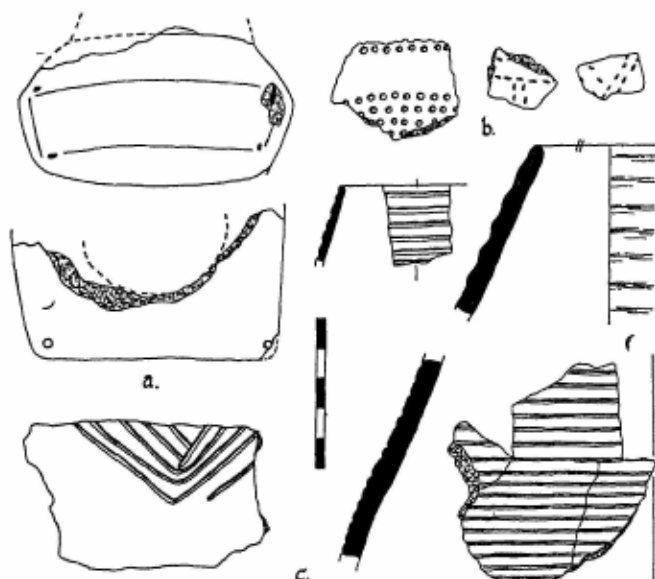


FIG. 12. NON-LOCAL COPPER AGE WARES. *a.* Gaudio?, IX. 8; *b.* Conelle-Ortucchio, IX. 4 and II. 1e; *c.* Piano Conte II. 3, II. 4b, II. 3, XI. 8

and tanged (of which one was obsidian), 5 hollow-based, 3 leaf-shaped, 1 transverse. Two lunate microliths were found.

Many small flakes of obsidian came to light, and four small cores. The barbed and tanged arrowhead was mentioned above. With two exceptions these were all of the translucent grey Lipari obsidian. The two odd ones were much more opaque, dense black, and one at least had part of a rolled pebble surface showing, all of which point to a source on Palmarola, one of the Pontine Islands.¹⁵

A number of hammerstones, two flat pebbles pierced as spindle-whorls¹⁶ and a third with the perforation not completed close the list of stone artifacts. Of

¹³ These are common at Ripoli and again recently at Santa Maria in Selva in the Marche.

¹⁴ This occurs locally, in the bed of the Ginestra a kilometre to the west for example.

¹⁵ The sources have been confirmed by Fussi and

Cornaggia by chemical means, as reported in a paper to the VIth International Congress of Pre-historic Studies at Rome, 1962.

¹⁶ Occurring at Santa Maria in Selva also.

great interest was a small copper or bronze awl point of square section found in IX. 7 (fig. 13*l*). This was the only metal. Nine small bone points and two of horn were found in all. There was further a slip of bone apparently used for polishing, and the long bone of a cow cut off transversely and ground smooth may have served a similar purpose.

Domestic animal bones occurred in considerable numbers, in the proportions 60.5% sheep/goat, 25.5 cow, 11 pig, and 3 dog.¹⁷ A few wild animals were represented, though much more scantily. They included tortoise,¹⁸ deer, wolf and birds. Of incidental interest was a carbonised crab-apple.

II. 1b-3, XI. 3-5. This group of levels was much less important stratigraphically. It seemed to represent a trough running parallel to the cliff face and dipping to

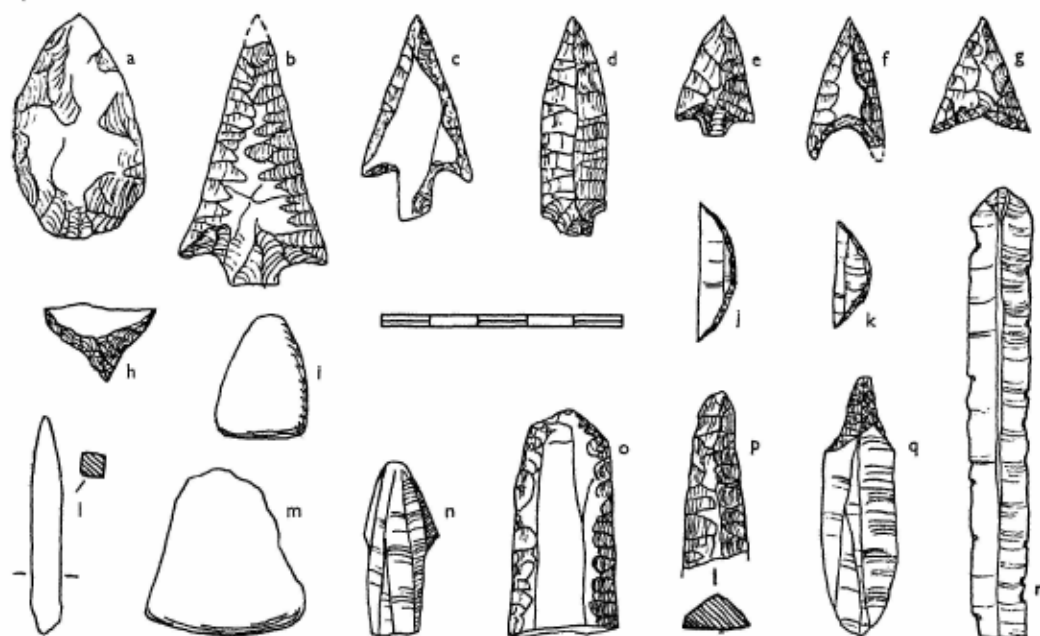


FIG. 13. RINALDONE FLINT (*a-h, j, k, o-r*), stone (*i* and *m*), copper (*l*) and obsidian (*n*). *a*. XI. 5; *b*. XI. 8; *c, d, f*, and *g*. II. 3; *e*. XI. 10; *g*. IX. 3; *h*. sporadic; *i*. IX. 9; *j*. IX. 6; *k, n*, and *o*. IX. 8; *l*. IX. 7; *m*. XI. 11; *p*. IX. 5; *r*. IX. 10

the north-west, perhaps caught behind a large fallen block, since disappeared. All levels were sandy or silty, washed in from above. It was this part of the wall of trench II which fell away (see p. 9, above) before trench IX was begun.

II. 3 was fairly rich. As it contained nothing later than Copper Age, its material was considered with that of the last section. Higher levels were extremely poor, but all held at least a few early Apennine sherds. The only other find of note was five small human skull fragments, one of them part of the upper jaw of an adult. They are presumably the remains of a burial eroded out and redeposited.

¹⁷ From well over 500 identified examples.

¹⁸ No longer occurring in the area.

XI. 2. Clearly visible in the north-west face of XI was a pit a metre wide and nearly the same deep. There was much charcoal in its bottom. A score of sherds dated it to Apennine C.

II. 1a, IX. 1, XI. 1. The surface humus contained an uninspiring variety of material, mostly poor Apennine sherds. There were one or two earlier and later ones, including a painted Apulian Geometric sherd (fig. 22e). This showed a narrow red band between wider purple-brown ones on a buff surface. There was even a very badly corroded coin, possibly a Roman radiate head.

III. Bronze Age

Far and away the commonest material on the surface of the site was pottery of the Apennine Bronze Age. The quantity suggests that the village-settlement of

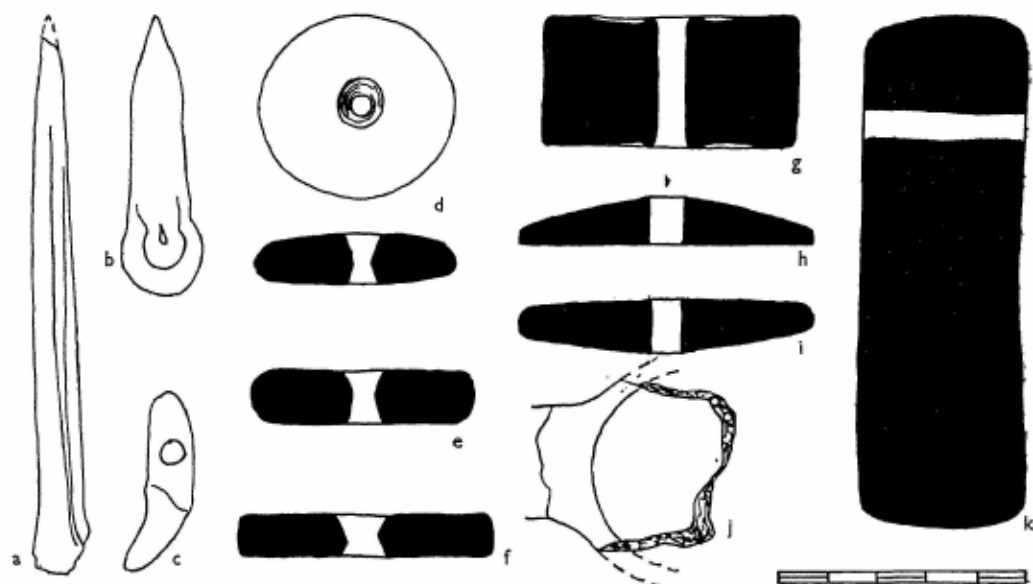


FIG. 14. RINALDONE BONE (a-c), stone (d-e) and terracotta (f-k). a. and d. IX. 7; b. and c. II. b; e., h. and j. IX. 8; f. IX. 5; g. XI. 8; i. IX. 6

the Stone and Copper Ages had become an important town. Traces of the period have been recorded above in trenches I, II and XI and scanty remains were found also in trenches VII and XII, below. Rubbish-filled crevices in the cliffs, the 'caves' of the 1957 article, gave much material too. Our main evidence, however, comes from a rich undisturbed deposit on the terrace along the north-east flank of the hill.

a. Trenches III/V/VI

This deposit was located by trench III in the first campaign of excavation (fig. 2). It measured 9×1.50 metres and showed no signs of failing at 1 m. down, or even, in a smaller pit to check this point, at 2.40 m. It had to be refilled to avoid injury to animals grazing on the terrace. In 1960 trenches V and VI beside

the site of III were begun from the surface, measuring 2×2 and 4×2 m., with a metre balk between. Rock was reached at a maximum depth of 5.50 m. in the first, 3-4 m. in the second, giving a cross-section of the terrace (fig. 15).

The structure of this turned out to be based on a ridge of rock crossing the middle of VI roughly parallel to the lip of the terrace and to the slope of the hill above. Trench V, although on the uphill side of the platform, was the deeper since it descended into the trough behind this ridge.

The deposits were the result of three activities. Levels V. 8b-11 were due to natural erosion and deposition. They were respectively of decayed gypsum, water-laid silt and stiff orange-brown clay, filling the bottom of the trough. Above this

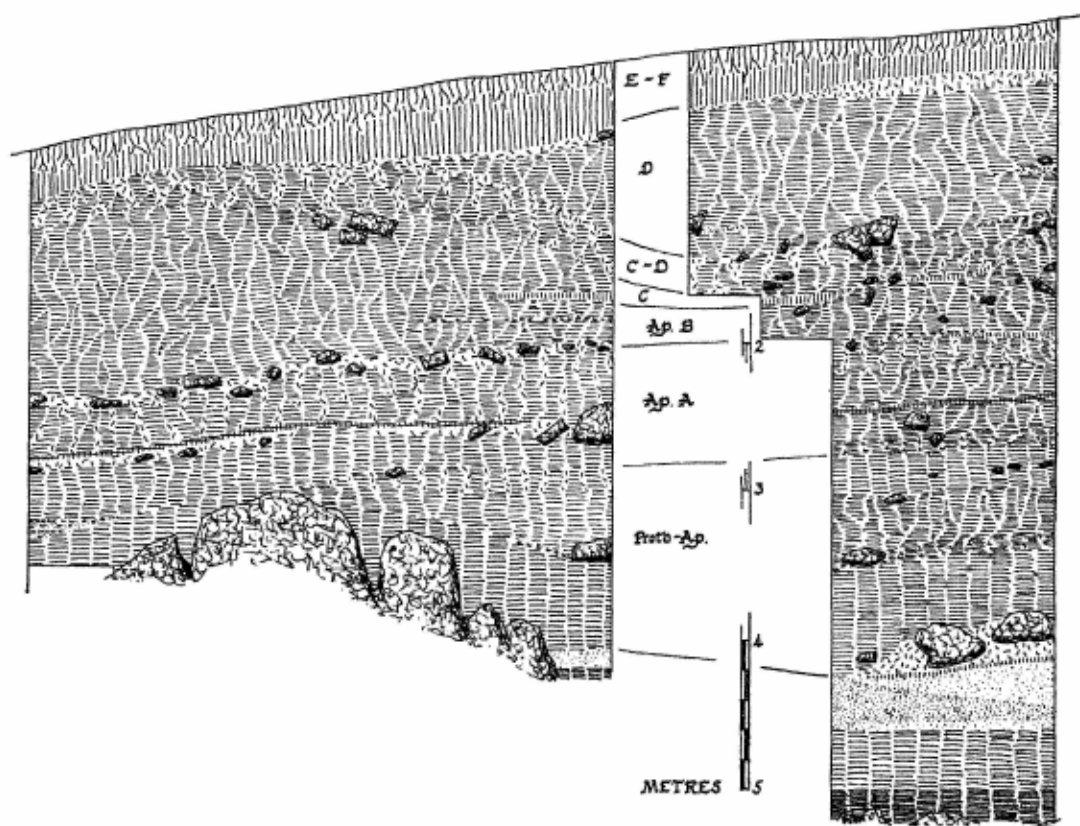


FIG. 15. THE SOUTH-EAST FACES OF TRENCHES V AND VI

point the deposit was the result of accumulation of rubbish discarded from above and accumulation on the spot, probably by herded cattle or the like. It was very uniform, a soft but compact dark grey earth rich in organic and cultural remains, with occasional blocks of stone and more clayey streaks. Small hearths were found at higher levels in all three trenches, better explained as watch-fires with folded flocks than as the main settlement, which must have been on the hill-top above. Slight differences in consistency were insignificant in themselves and only

important for supplementing the evidence of cultural stratification. The levels will be described by their contents only, remembering that they are properly stratified, not merely arbitrary spit depths. The point is important as this stratification revealed the complete history of the Apennine Bronze Age on the site.

V. 8b-11, VI. 8. Virtually sterile. There were nine indeterminate sherds, a lump of daub, four pig and three sheep teeth, three chips of flint and, the only piece of interest, part of a quern of black lava.

V. 6-8a, VI. 6-7. These levels were fairly rich but, with a few notable exceptions, the material was not very distinguished. Comparison with the Rinaldone material of the cliff trenches on the one hand and with the overlying levels on the other demonstrate clearly its transitional character as a true proto-Apennine (fig. 16).

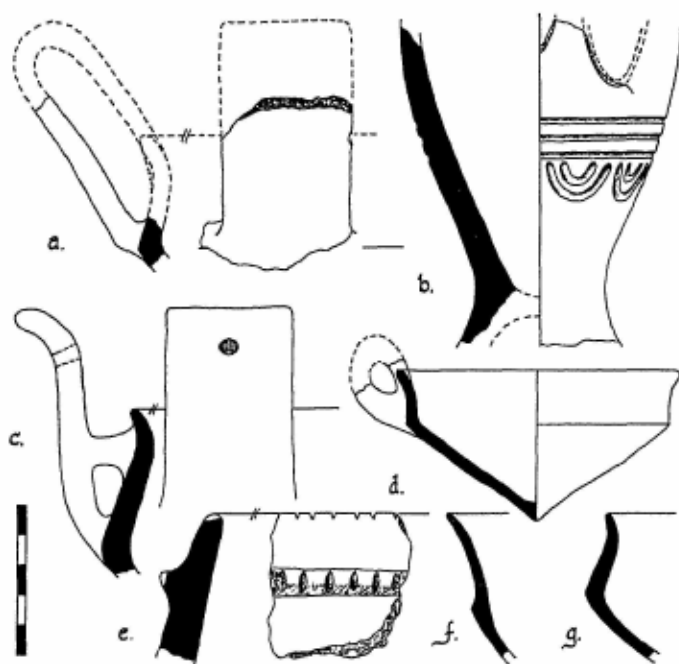


FIG. 16. PROTO-APENNINE AND APENNINE A FORMS. a. V. 5; b. and g. V. 7; c. and f. V. 8; d. VI. 7; e. VI. 6

The proportion of Rinaldone carinated to tronco-conic dishes was as one to nine. In these levels it had risen to one to one. Further, the carinated vessels were here more advanced in having a distinct concave neck, not merely an angle in the wall near the lip. Changes among the jar forms were even more noticeable since the bottle, 15% of Rinaldone vessels, had disappeared, to be replaced by ovoid, everted-lip or S-profile jars. Two traits appearing suddenly and for the first time are the use on the coarser ware of cordons, usually finger-indented, and on the finer of axe-handles, already in a long form pointing forward to the south Italian tongue handles. Occurring neither earlier nor later were sherds of fine

were strap handles of very flat section, parts of high ribbon handles resembling Etruscan bucchero shapes as much as anything.

The noteworthy vessels were the three following. One sherd was apparently from a milk-boiler¹⁹ of the southern form, a bowl with a large collared central perforation surrounded by smaller ones, a characteristic Apennine shape. Nearly complete was a very neat carinated bowl with a broken ring handle and a pointed

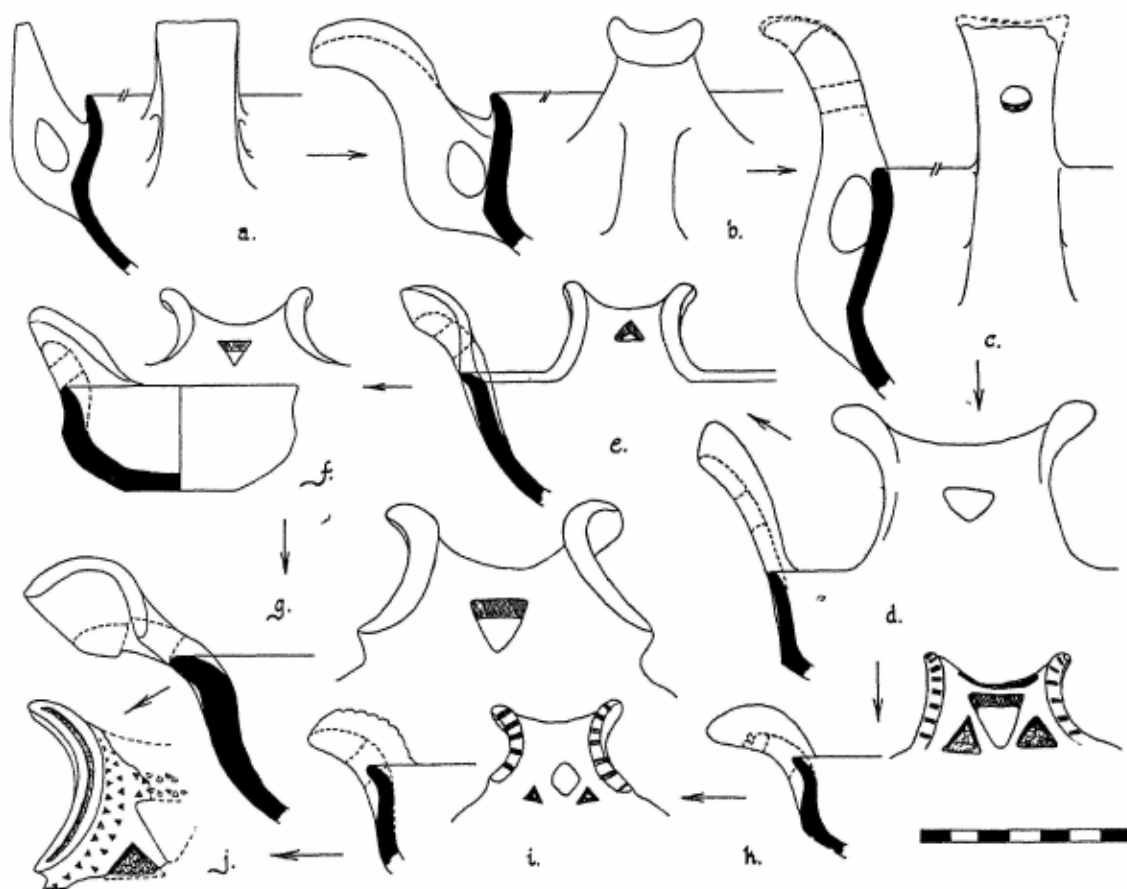


FIG. 17. THE AXE AND TONGUE-HANDLE DEVELOPMENT. a. VI. 7; b. V. 3; c. VI. 7; d. sporadic; e. and g-j. III. 3; f. III. 2

base²⁰ (fig. 16d). Both these were from VI. 7. From V. 7 came substantial fragments of an extraordinary vessel (fig. 16b), a deep pedestalled goblet, base and rim both unfortunately missing. It was decorated with grooves forming horizontal bands and pendant arcs.

¹⁹ S. Puglisi, *Civiltà Appenninica*, 1st edition, 1959, pp. 33-38.

²⁰ Examples in Naples Museum with separate or

attached pedestals; also one from Pioppetto, p. 27 below.

III. 3*d* (?), V. 4–5, VI. 5. The overlying level was even more explicitly Apennine and can be classed as full Apennine A.²¹ The lowest level reached in III probably belonged here also, though it was too poor for certainty. Carinated exceed straight-sided dishes in the proportion of three to one. Coarse ware with cordons and impressed rims is now common, and remains so throughout the later development. Fine decorated ware, cut-out, incised or dotted is still completely absent, however. The axe handles have further developed, the strap part diminishing in importance relative to the long tongue from the lip (fig. 17*c*). Another handle to be mentioned in the discussion is that springing horizontally from the wall, first appearing in small numbers here. One other sherd of note is from a rectangular vessel subdivided by an internal septum, the top of which is modelled into a small cup.

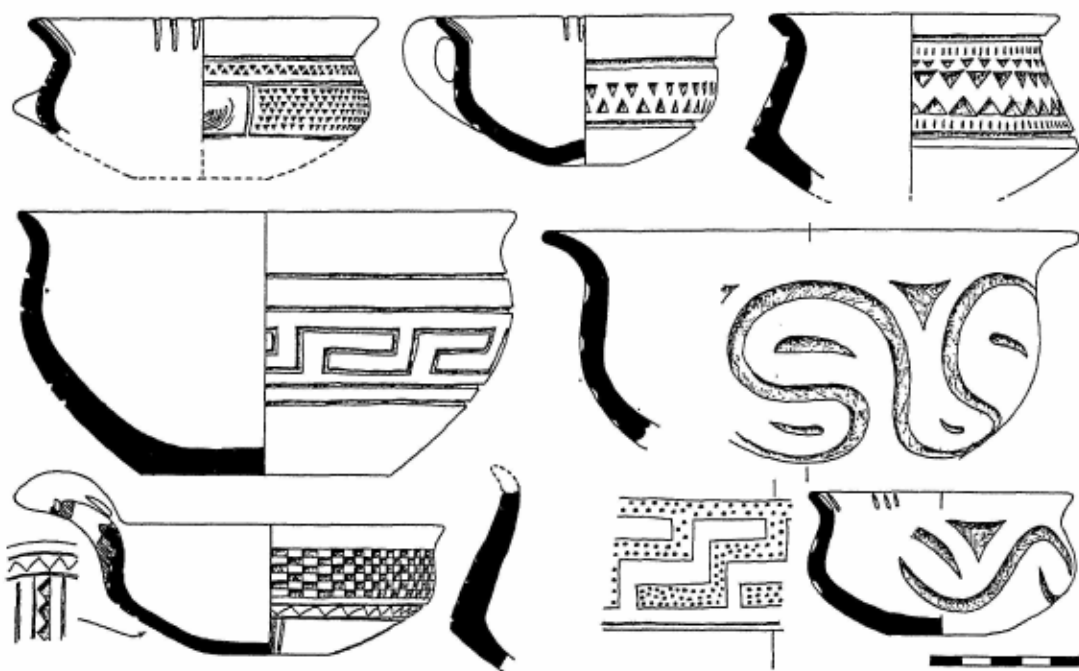


FIG. 18. APENNINE C AND D DECORATED VESSELS. *a.* VI. 3; *b.*, *e.*, *j.* and *h.* III. 3; *c.* VI. 4; *d.* III. 3*c*; *g.* V. 2

The changes can be briefly summed up as a strengthening of Apennine traits over the fast-fading Rinaldone ones.

III. 3*c*, V. 3, VI. 3–4. Two innovations mark the change to Apennine B. The first is in the field of decoration, where the coarse ware cordons are joined by cut-out designs on the fine ware, few at first, rapidly becoming common. At this stage curvilinear motifs based on the running spiral are scarce compared with rectilinear ones, the square meander, etc. Particularly common are zones or panels

²¹ This terminology follows that employed in the writer's article on the Apennine Culture in *Proceedings of the Prehistoric Society (P.P.S.)*, xxiv, 1958, p. 165. It will be discussed more fully below.

filled with small cut-out triangles as an over-all filling or, when more carefully executed, as false-relief chevron bands.²²

The second is the appearance of the tongue handle, the most characteristic trait of the Apennine Culture in Southern Italy. Its derivation from the long axe handle of phase A, which continues beside it, is clearly apparent. Towards the top of this level a tendency for the edge of the tongues to flatten becomes noticeable (fig. 17*e*).

By far the commonest vessel shape is the carinated bowl with a single vertical handle, though jars in a wide range of shape and size are also frequent. Sherds of milk-boilers of both the southern (the centrally perforated bowl) and northern (internal ledge jar) varieties are present; also of a strainer or skimmer.

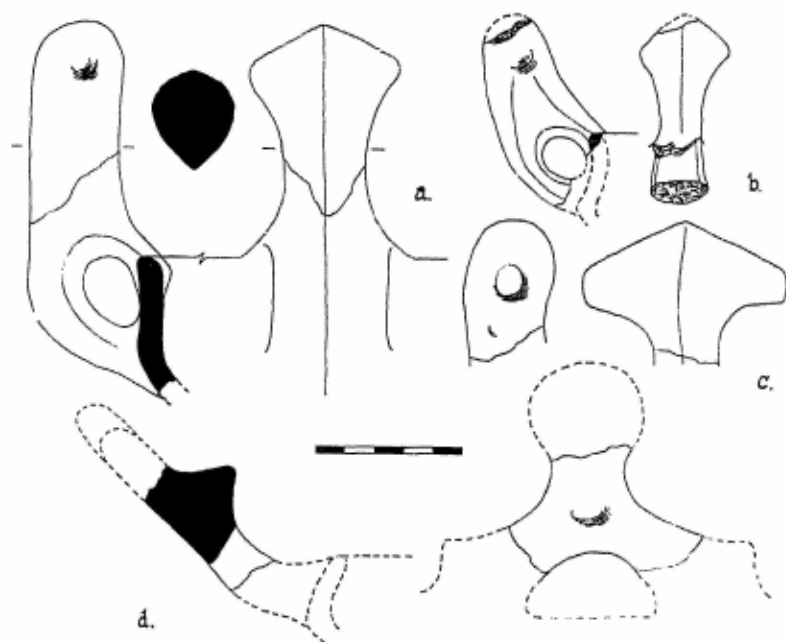


FIG. 19. NEVIGATA HANDLES. *b*. VI. 2, remainder III. 1*b*-2

III. 3-3*b*, V. 2 lower, VI. 2 lower. Differences between Apennine B and C are slight but highly significant. The fine decoration is now common and extremely elaborate, particularly in its curvilinear form. The variety and skill with which the idea of the running spiral is developed invite admiration, as the examples in fig. 18 show.

Possibly associated with this change of emphasis to the curvilinear, which is less happy when confined to a restricted zone, the carination of the bowl is often rounded to allow the decoration to spread freely from the neck over the body. The S-curved bowl then, replaces the carinated bowl as the characteristic form, though the latter remains common among undecorated vessels.

²² Where two opposed rows of triangles interlock leaving a zigzag between them, as in fig. 18*c*.

In the history of the tongue handle, four developments become apparent at this point (fig. 17). The tips tend to curve out in a more exaggerated fashion. The bevel of the edges becomes much more pronounced. In some cases this narrows to a point where the handle joins the rim, instead of curving gently into the latter. Finally the decoration begins to spread from the neck of the bowl on to the handle itself. These factors only acquire significance when, as occasionally happens, they come together on the same handle. This will be dealt with in the discussion.

III. 1c-2, V. 2 upper, VI. 2 upper. In trenches V and VI, no clear-cut division between these two levels was found, as had been the case in III. However, the findspots of particular pieces accorded fully with the trench III results, *i.e.*, phase D pieces came only from the higher part of the levels.

In this phase the coarse and fine ware decoration continues, but the latter is already beginning to tail off from its peak in C. In the former, some of the cordons are now left smooth. The tongue handles too continue as before, the more advanced ones, with the lower point standing well clear of the rim, noticeably commoner than in the previous phase (fig. 17g).

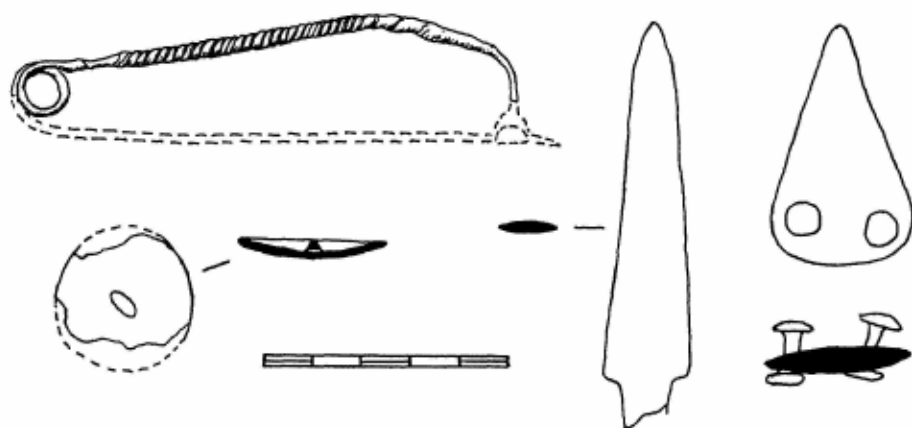


FIG. 20. APENNINE D BRONZES. Violin-bow fibula VI. 2; button III. 1c; two knives III. 2

One other form of handle arrives suddenly and fully developed at this point, the *Navigata* handle (fig. 19). It consists roughly of a keeled pillar rising from the handle loop, at the top of which conical bosses are set on either side. Ten examples came from the three trenches, with six of related forms. This was the only type of handle of northern inspiration present, horned handles, etc., being completely absent.

The most notable innovation, however, is the equally sudden appearance of bronze. The only pieces earlier than this were the awl-point in IX. 7 and a shapeless scrap in VI. 3. In these phase D levels were six scraps of waste metal, one piece of metallic slag and the following five recognisable objects (fig. 20): a violin-bow fibula with a twisted back, its catch-plate and pin missing, 10.3 cms. long; a double shouldered knife, its blade 7 cms. long and a further centimetre of tang surviving; a small triangular dagger blade with two large rivets, 4.8 cms.;

a circular concave button with a pierced lug for attachment, diameter 2.8 cms.; a section of pin, 3.1 cms. long. Their significance will be discussed below.

III. 1a-b, V. 1, VI. 1. These levels represent the humus layer on the site. Due to wastage from the surface and their poverty, their evidence is condensed and not altogether reliable. At least three phases are clearly visible, though mixed together. The first, easily dismissed, is of earlier material scuffled or scattered into the level.

The second group has clear affinities with the Pianello urnfields, making it Apennine E in the sequence. Characteristic pieces (fig. 22a-c) include a boss with curved grooves over its top, another grooved sherd, eight horizontal handles,²³ three inverted-lip bowl sherds and a hexagonal spindle whorl. No fine decoration occurred in these levels in V and VI, so its presence in III must be accidental, placing it in the first group above.

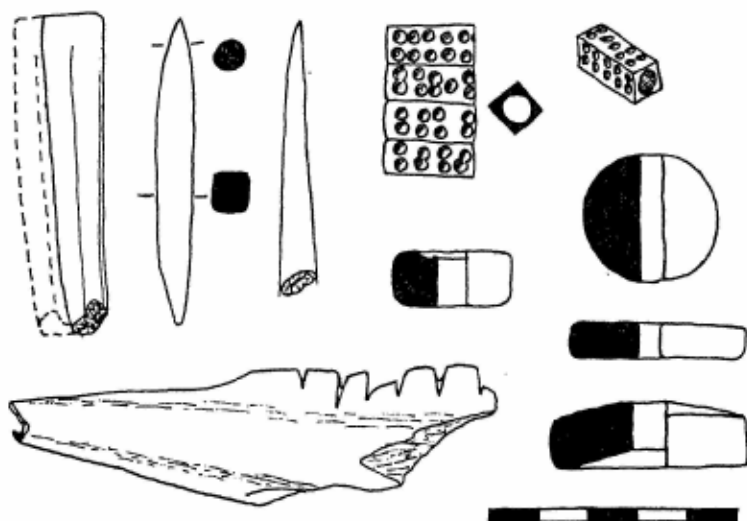


FIG. 21. APENNINE BONE AND TERRACOTTA. Chisel III. 3; awls III. 3c and VI. 6; bead and comb (?) VI. 3; spindle whorls V. 3, V. 7, VI. 4 and XI. 1

The third (fig. 22d-g) consisted of a group of hard-fired buff sherds quite different from anything in lower levels. It is classed, by reason of its dark purple painted decoration, with Apulian Geometric wares. Sherds were all small, a jar neck and a thin strap handle being the only ones with recognisable shapes.

Objects of stone, bone, etc., are shown in fig. 21. Apart from the bronze, the few artefacts of material other than pottery showed no significant differences from level to level, so can be grouped together for simplicity. Flint occurred throughout, with a slight tendency to decrease at higher levels. The only tool was an end-scraper in V. 3, where was also the only chip of obsidian found. Three heavy pebbles used as hammers came to light, one quern (III. 3b) and fragments of black lava from others (III. 2 and 3, V. 10). A small pebble from VI. 4 had a cross scratched on it.

²³ These occur rarely from B on, never previously in this quantity.

Spindle whorls occurred freely, at all levels. Four were cylindrical or discoid, one spherical and one, mentioned above, hexagonal.

Bone awls were common, seven coming from various levels. Slightly different was one with a chisel edge from III. 3. A shoulder blade fragment from VI. 3 had had one edge cut into notches. Also from VI. 3 was the most interesting piece, a prismatic bead of square section perforated lengthwise. The four long faces bore drilled pits at first suggesting a dice, there being 8, 8, 9 and 10 on the different faces. They are probably purely decorative.²⁴

A total of 482 fragments of animal bones identifiable as to species gave the following percentages of domestic species. Sheep/goat (both present, though their relative numbers are unknown) 44, cow 33.5, pig 19.5, dog 3. Wild animals were poorly represented, adding perhaps 5%, mostly tortoise with a few deer. Three scraps of bone might have been from human skulls.

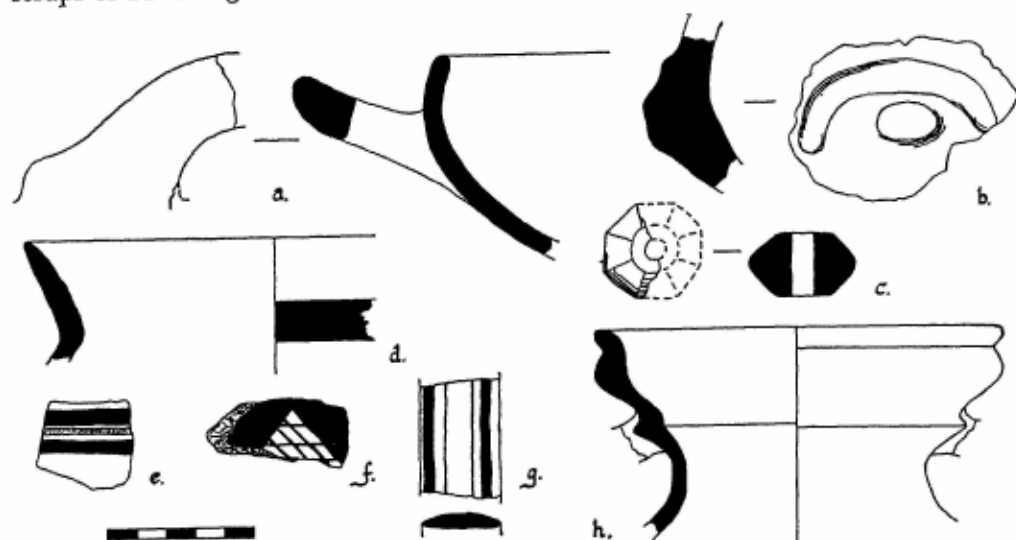


FIG. 22. Apennine E (a-c), Apennine Geometric (d-g) and Greek (h) sherds. a., e. and d. V. 1; b. VI. 1; c. II. 1; f. and g. III. 1b; h. I. 4

b. Trench XII

A second small trench, 1.50 m. square, was dug towards the northern edge of the level ground on the summit to supplement the results of trench IV. It gave instead a little Apennine material only. Sherds of a Bari tongue-and-strap handle, a highly polished black strap handle of very thin section and many of cordoned vessels would suggest an equation with the proto-Apennine phase of the stratified trenches.

Added interest came from an orange hearth level 65 cms. from the surface in the eastern corner and a posthole, 25 cms. in diameter, which descended from the same level 40 cms. down into natural clay near the centre of the trench. Apart

²⁴ A similar bead was found in one of the Apennine tombs at Murgia Timone, Matera, now in the Naples Museum.

from the built hearths on the terrace, this is all we have to show for the actual dwellings on the site. As the object of the research was primarily stratigraphic, this aspect was not further pursued.

c. Trench VII

An even smaller cut was made at a point on the south-west cliffs well to the east of XI where the rock dropped below a soil cover of unknown depth. It hit decayed rock at about 60 cms. and was consequently abandoned. In its upper part were some good Apennine sherds, including three simple tongue handles, carinated bowl sherds and a barbed and tanged arrowhead. The absence of decoration with the presence of the tongue handles would indicate an Apennine B date.

IV. Other Sites

During the work at La Starza, two other prehistoric sites were located in the neighbourhood.

a. Pioppetto

The farm of this name stands on the ridge 2 km. south-west of Buonalbergo village, so 10 km. west of La Starza. The fields between it and the lane junction to the south are thickly sprinkled with Roman debris, a station on the Via Appia Traiana²⁵ between the Ponte San Marco and the Ponte delle Chianche, but beginning much earlier as black-glazed sherds show. To the east of the site prehistoric sherds can be picked up also, with a few barbed and tanged arrowheads. We were shown one complete vessel exactly similar to the carinated bowl with pointed base from VI. 7 (fig. 16*d*), possibly from an interment. This and the arrowheads point to a phase very early in the Bronze Age, proto-Apennine or Apennine A.

b. I Tre Monti

South of La Starza and beyond the stream a lane climbs to the south-east. At the foot of the final climb it forks, one branch up to the Ariano-Montecalvo road at the point known as I Tre Monti, one into the outskirts of Montecalvo. In fields west of the lane and about 100 metres before the fork there is a scatter of Apennine sherds, including decorated ones probably of phase C.

V. Discussion

a. Neolithic sequence

Though La Starza was apparently continuously occupied, no Early to Middle Neolithic stratified sequence was located on the site. The single phase deposits and sporadic material can therefore only be interpreted in the light of evidence from elsewhere. The period is poorly represented in Campania, the Grotta delle Felci on Capri being the only important site. Lipari has an invaluable stratigraphy²⁶ but, being poised between the two worlds of Sicily and the peninsula,

²⁵ Ashby, *PBSR*, viii, 1916, p. 120 ff.

²⁶ L. Bernabò Brea, *Sicily before the Greeks*, Thames and Hudson, 1957.

with additional strains coming direct from the orient, its evidence cannot be used uncritically outside the Eolian Islands. Lucania and Southern Apulia are extremely rich in material, but as there are no stratified sites, any sequence can be based only on typology.²⁷ The most useful body of material for comparison is that excavated by J. Bradford in 1949 and 1950 in the Tavoliere around Foggia, less than 60 km. from La Starza, following the brilliant results of his researches from the air.²⁸

Very briefly, the sequence there is as follows: Campo dei Fiori²⁹—impressed and dark burnished wares; La Quercia—rocker pattern and dark on grey-buff painted; Passo di Corvo—plentiful dark burnish and painted red on fine buff wares; Fonteviva—purple on buff and burnished wares (=Serra d'Alto).

Ariano's history is similar but far from identical. For example, the dark burnished ware of Campo dei Fiori and Passo di Corvo, with its characteristic very open carinated bowls, is completely missing, its place being filled by the fine C-impressed ware, unknown out in the plain. Again, La Quercia painted ware outside the Tavoliere is known only from a few sherds at Ariano, which preferred the contemporary style of further south, the Matera scratched and encrusted ware. The red on buff and white on red wares of Passo di Corvo on the other hand are shared by the Tavoliere and the south, only a few sherds reaching La Starza. Particularly characteristic is the chevron-burnished sherd, fig. 5*h*. The impression given is very much one of changing fashions, with no sudden breaks. This is borne out by the evidence for overlap at Ariano, particularly of the later impressed and scratched wares, as in trench X. Because of these overlaps the sequence is not a cut-and-dried one, but its general form is clear now, despite the scrappy nature of the excavated deposits.

A pure impressed ware level is proven by the deposit in trench IV. It is followed by a complex like that in trench X, where scratched ware derived from the south appears alongside a more advanced impressed ware. This latter is virtually unknown outside this site and is best explained as a local development under scratched ware influence. From one side it has taken the idea of repeat impressions in the soft clay, now nearly always C's, but the grouping of these into designs rather than an indiscriminate all-over pattern points more to the scratched ware tradition. This offers better parallels for the shape and ware of the C-impressed vessels too.

A similar fusion of ideas is shown by the heavy scratched or more accurately rocker-gouged designs, far deeper than anything found in the Matera region. However, one or two sporadic sherds suggest that more distant influences might be responsible. These bear pairs of short gouged dashes remarkably similar to the "cicchi di grano" of the Fiorano ware in Emilia.³⁰ The appearance of the same in Late Neolithic Malta should urge caution on far-reaching conclusions.

²⁷ U. Rellini, *La più antica ceramica dipinta in Italia*, 1934, p. 51 ff.; R. B. K. Stevenson, 'The Neolithic cultures of South-east Italy', *P.P.S.*, xiii, 1947, p. 85.

²⁸ Following the excavator's sad illness, the present writer is preparing this material for publication by the Society of Antiquaries, who sponsored

the original research.

²⁹ An earlier phase not present on any Bradford site can be recognised at Coppa Nevigata, *R.S.P.*, x, 1955, and the Tremiti Islands, *idem*.

³⁰ Mansuelli and Scarani, *L'Emilia prima dei Romani*, p. 45 and pl. 3, a and b.

At the same time or shortly after, painted sherds of unmistakably La Quercia type appear quite frequently, as in the mixed deposit of trench I/XIII. Similarly others referable to Passo di Corvo occur among the sporadic finds and in the mixed level IX. 11, though never as commonly. The main local production continued to be of late C-impressed and scratched wares.

The period is a very difficult one and cannot be completely sorted out without many more stratified sections than have yet been found in Southern Italy.

b. The Late Neolithic

We are on much surer ground as soon as we come to the IX. 9/XI. 11 horizon, as this is without question a closed association of material. The presence of Serra d'Alto elements as far north as this was itself a surprise of which the surface collections had given no hint.³¹ The few sherds at Fonteviva near Foggia show that it was not completely isolated in Northern Apulia.

Of greater importance is the association of Serra d'Alto with Bellavista as this has much wider implications. The Serra d'Alto material is fairly early, Stevenson III A,³² by reason of its free use of the bordered zigzag, solid triangles, diagonal meanders and handles with the characteristic tripartite outline. Bellavista is linked to a simple form of the Marmo-Diana complex by its free-standing cylindrical handles. Here these two are intimately associated and immediately replaced by a Rinaldone Copper Age. This would put the later Serra d'Alto with taut outline, splayed lugs and sparing use of the bordered zigzags, and later Diana, again with skeuomorphic splayed lugs, contemporary with at least early Rinaldone.³³

This view has several advantages. For one thing it helps to bridge the gap between the Late Neolithic and the Apennine Bronze Age in Apulia, to which previously belonged only a handful of tombs like Andria, San Vito dei Normanni, etc. For another it explains the traces of copper working in the Diana levels at Lipari.³⁴ On the other hand, it is at odds with the clear-cut stratigraphy on that site, where Diana is found over Serra d'Alto.

The explanation of the anomaly seems quite simple. The Lipari stratigraphy cannot be called in question, but its relevance is not universal. Serra d'Alto, with its meanders and the like, is clearly of Balkan inspiration, reaching Lipari and, sporadically, Sicily from Southern Italy. The Diana complex comes from a quite different source, with its origin in Stentinello impressed ware. Traces of this line of development have recently come to light at Skorba in Malta.³⁵ Whether that was the sole source or whether parallel developments were taking place in South-east Sicily is immaterial here. In any case, Serra d'Alto reached Lipari from the east first, to be replaced by a simple Diana from the south later. The advanced Diana is a subsequent and specialised local development,³⁶ parallel to the late Serra d'Alto and probably, like the latter, crossing the border into an early Copper Age.

³¹ Sherds have been found at Vitulano, just west of Benevento (unpublished information from Dr. G. Buchner) and lately at Palidoro, right up beyond Rome (Pigorini Museum).

³² Stevenson, *op. cit.*, p. 95.

³³ A pit with late Serra d'Alto pottery on the

type site contained a barbed and tanged arrow-head.

³⁴ *B.P.I.*, n.s., x, 1956, p. 31 of extract.

³⁵ *Antiquity*, December 1961, p. 300.

³⁶ Bernabò Brea and M. Cavalier, *Meligunis-Lipari*, vol. 1, p. 36 et seq.

Putting it more simply, the Diana complex and Serra d'Alto are broadly contemporary in their centres of development, not successive as Lipari suggested. Secondly, Lipari Diana in its later and richer phase is not characteristic of the complex as a whole, so the two uses of the term, Lipari Diana and Diana complex, must be clearly distinguished.

c. Copper Age

The domestic animal bones indicate a good mixed economy in proportions very similar to those at the farm on the site today, with only the horse missing. The scarcity of wild animal bones, implying little dependence upon wild game, is noteworthy.

External contacts are more important. The copper awl implies far-reaching connections, but it is the pottery which can be more clearly placed. Copper Age Italy seems to have been divided into five cultural zones, Ariano just falling within the southern edge of the Rinaldone area. This covered roughly Northern Campania (Colle Sannita, Toppo San Filippo), Latium and Tuscany. Evidence for contact with Gaudio in Central and Southern Campania, late Serra d'Alto in Apulia and Lucania and with Remedello in the Po Valley is so far slight or absent, and with Conelle-Ortucchio in the Abruzzi and the Marche little better. Closer relations were maintained with Piano Conte Lipari, probably in connection with the obsidian trade. Other traces of the same can be seen in corrugated vessels on Capri and, more surprisingly, Ostuni.³⁷ The absence of these imported sherds until fairly high in the Rinaldone stratigraphy hints at a comparatively early start for that culture.

d. Bronze Age

The most important result of the work at La Starza was the very full documentation of the Apennine occupation of the site, the details of which have been described above. In discussing the history of the Apennine Culture in 1958, the present writer concluded the section on its origins with the ineffectual and apologetic sentence, "No proto-Apennine has yet been recognised."³⁸ The discovery of early Apennine and, equally important, immediately preceding deposits clarifies the position considerably.

The first point is one of interpretation of the significance of the changes from level to level on the north terrace at La Starza. They could represent a true transition, of one culture growing out of another on the spot, or they could be a gradual replacement of the earlier culture by another neighbouring one. Actually they are partly due to both processes, so the conflict in the two views is largely illusory.

Taking the local element first, no flaw has appeared in the 1958 suggestion that the fabric of the Apennine ware is a direct continuation from that of the Copper Age or even ultimately from the dark burnished Neolithic wares. At that time, with domestic Rinaldone ware represented by a few pieces, not certainly

³⁷ Grotta delle Felci, *Mon. Ant.*, xxix, 1923, and Ostuni, *B.P.I.*, lv, 1935.

³⁸ *P.P.S.*, xxiv, 1958, p. 165.

dated, from the Vibrata, a source for the characteristic Apennine carinated bowl was sought outside the peninsula, in Polada or Capo Graziano. Ariano has shown this to be quite unnecessary, since this vessel shape is now connected by intermediate proto-Apennine forms to the carinated bowls of domestic Rinaldone ware.

The two extraneous elements marking the beginning of proto-Apennine were the coarse ware with impressed rims and cordons and the axe handles. For these one must still look higher up the peninsula, where both occur freely in Neolithic-Copper Age contexts in Latium, the northern Abruzzi, the Marche and on to the Po valley.

Apart from showing that the specialised cooking vessels, the milk boilers for example, go back to a very early date, nothing further can yet be added on their problematical connections.

No other elements need be considered at this stage as they did not appear until higher levels in the Ariano stratigraphy. What one is left with is a purely local, in the sense of Central Italian, cultural group expanding into the south and beginning a period of dynamic growth. The change comes not with the association of the component elements—they had already been together for some time, along the Vibrata for example—but with the breaking of the long stagnation represented by the 3·70 metres of deposit in trench IX. Of the two cultures, that of Rinaldone was static, that of the Apennine dynamic, though the cultural material immediately on either side of the dividing line would be indistinguishable.

That state of affairs did not last long. The change once started was rapid. The carinated bowls soon oust the straight-sided ones, and throw up new forms like that with the pointed base. The axe handles develop rapidly and before very long lose any resemblance to the puny Ripoli or Polada forms. The suggestion that they developed from the tongue handles now has to be reversed on the evidence of the Ariano stratigraphy. The tongue handle is an axe handle which has lost its loop, not vice versa. On the other hand, the later developments leading to the Filottrano handle have been amply confirmed stratigraphically.

The first big change, the sudden appearance without antecedents of the fine ware decoration, must be due to foreign influence. Excised decoration with spirals occurred at Chiozza, but the gap in time is too great to be easily bridged. Dotted decoration is common at Conelle and Ortucchio, even occasionally with line borders, but their simple rectilinear designs have nothing in common with even the simplest of the Apennine ones. The earliest of these are already competent meanders, spirals, false relief bands, etc. One has to look to a region where all these elements were present, Yugoslavia, a short sea-crossing only from the Gargano and Apulia. Still later, immediately beneath the turf on the terrace, comes the introduction of grooved ware, which supplanted the cut-out and dotted decoration everywhere except in peripheral regions like Latium.

Since the opening of full Apennine A, then, the new evidence has borne out to a gratifying extent the sequence deduced by the writer from typological studies of the museum material. He sees no reason to alter any of the interpretations there offered but rather can claim stratigraphical confirmation for them. It is a pity that the later part of the sequence at Ariano was too condensed to show whether the Apennine ware was still being made at the time the late painted

vessels were coming up the track from Apulia. After that, the pass remained in use, but travellers no longer stopped at La Starza to exchange their goods or pay their tolls.

D. H. TRUMP

EXCAVATIONS BESIDE THE NORTH-WEST GATE AT VEII 1957-58

PART II*. THE POTTERY

(Plates V—XIII)

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1. *Introduction*

THE pottery from the sites excavated in 1957 and 1958 came, in the main, from two strata: the earlier occupation material on, and thrown over, the scarp on the western edge of the knoll on the north side of the north-west gate and the tips of the great earth and stone rampart of the fifth-century Etruscan defences. The former consists of two groups which are drawn and described as such below, Groups A1 and A2. The latter is made up of a variety of sherds dating from the seventh, sixth and fifth centuries B.C., probably scraped up from the surface earth nearby in the making-up of the rampart, so that only representative sherds have been published as types of some particular ware, as dating evidence, or as comparative material. The *cuniculi* found in both years' excavations, apparently broken into and deliberately filled prior to the building of the rampart and the rampart wall, contained, as well as a number of earlier sherds, a quantity of three specialised pottery types, and these have been published fully, Groups B, C and D.

There are, in addition several small stratified groups. First the early material: Group A3 on the eastern side of the knoll, and, on the western side, the filling of the post-holes and gullies of the earliest timber structures. Both these are considered with Groups A1 and A2. Then there is the material from the filling of

* For Part I, see *PBSR*, xxvii, 1959, pp. 38-79.

the post-holes and gullies of the Rectangular Timber Building, and the material from the construction of the subsequent Stone Building and sherds from the filling of the drainage channel in front of it. The other pre-rampart deposits consist of the occupation material found under the rampart in 1957, the relevant contents of Pit 1 which although a comparatively late structure contained some early sherds, and the material found in Pit 2 behind the rampart. Some sherds come also from the silting behind the tail of the rampart, but these might be considered as unstratified as they may be the results of recent ploughing.

The term 'impasto' has been used here primarily to describe hand-made sherds which have been burnished on both faces; when the sherds appear to have been turned on the wheel or burnished on one side only this has been noted in the text. When the burnish has been applied so as to produce a lustrous finish, this also has been noted. The term 'coarse ware' implies here a similar fabric to impasto but without any apparent application of burnishing technique. The term 'fine' or 'thin' impasto has been used throughout in preference to Gjerstad's 'advanced' impasto. The general fabric is a dark-grey or reddish clay incorporating fragments of tufa and in some cases augite and with particles of mica glinting through it. Minute mica flakes¹ can also be detected in the local imitations of Greek vases and their absence is also noted in the text. Many of the pots, although belonging to handled types, have of necessity been drawn without handles, as these have rarely been found attached.

The following bibliographical and other abbreviations are used throughout:

- B.P.I.* *Bullettino della Commissione Archaeologica di Paletnologia Italiana.*
Dohan E. H. Dohan, *Italic tomb groups in the University Museum, Narce and Vulci.*
E.R. I, II, III. Einar Gjerstad, *Early Rome I, II, III, Skrifter Utgivna av Svenska Institutet i Rom*, xvii, 1, 2, 3.
 'Excavations' J. B. Ward-Perkins, 'Excavations near the North-West Gate, Veii' (Part 1) *Papers of the British School at Rome*, xxvii, 1959, pp. 38-79.
G.G. and G.G.X. Material from excavations in the cemetery of Grotta Gramiccia near Veii, now in the Villa Giulia in course of publication. Cf. also *PBSR*, xxix, 1962, pp. 42, 90-99.
Mon. Ant. *Monumenti Antichi dell'Accademia dei Lincei.*
N.S. *Notizie degli Scavi.*
Palm Jonas Palm, 'Veian Tomb groups in the Museo Preistorico, Rome', *Skrifter Utgivna av Svenska Institutet i Rom*, xvi (*Opuscula Archaeologica*, vii) 1952: Vacchereccia (Vac.) and Picazzano (Pic.).
PBSR *Papers of the British School at Rome.*
Poggio Buco Giacinto Matteucig, *Poggio Buco. The Necropolis of Statonia*, University of California Press, 1951.
Q.F. and Q.F.X. Material from the recent excavations in the cemetery of Quattro Fontanili, near Veii, now in the Villa Giulia in course of publication. References to this material, in the form 'H. 19' etc., are to the provisional numbering of the grave groups. Cf. also *PBSR*, xxix, 1961, pp. 46, 110-119.
St. Etr. *Studi Etruschi.*

2. Groups A1, A2, A3 (v. Chart on p. 35)

These groups consist of material from the occupation deposits that were found scattered down the slope of the hillside, in front of the later rampart wall, and must represent the rubbish thrown out from the buildings on the crest. Group A1

¹ Cf. Dohan, p. 3 for the occurrence of mica in her notes on 'Ceramic Technique'.

<i>Types</i>	<i>Groups</i>			<i>Timber structures of earliest phase</i>
	<i>A1</i>	<i>A3</i>	<i>A2</i>	
Decorated Villanovan sherds, comb, dot, cord-impressed	9	4	8	
„ „ „ incised			1	
Finger-grip Villanovan handles		1	4	
Biconical bowls, heavy, no decoration	10	1	18	2
„ „ „ incised decoration	1		3	
„ „ lugs, lustrous impasto	2		2	
Open bowls straight or incurved rims	7	6	30	8
Thick impasto sherds with finger-tip impressed or slashed cordons	13	2	30	
Jars with everted rims	5	1	24	2
Pieces of oven (recognizable)	2		12	
Heavy flared rims of jars or dishes	7		19	
Mugs or handled jugs	1		4	
Squared lugs			5	
Biconical bowls, cord-impressed decoration, lugs, lustrous impasto			7	
Vertically fluted ware			2	
Fine lustrous impasto bowls or cups			6	1
Fine impasto rims of spiral amphora type			3	
Red impasto sherds	1		35	2
Bucchero			4	
Painted sherds			4	1
Cordoned jars or bowls			6	

comes from a shallow scoop in the tufa ('Excavations', pl. XXXI, Section AA', level 2) sealed by stones and debris of later deposits (*ibid.*, level 3) and this has been treated separately. Group A2 consists of sherds from the other numerous tips, some of which may have come from the levelling and preparation of the crest for the Rectangular Timber Building and contain some later material. Group A3 consists of sherds from two levels (*ibid.*, Section AA', levels 12, 13 and Section FF', 2-4) lying on the natural clay-like *pozzolana* at the eastern edge of the knoll. These levels are composed of heavy clay similar to the *pozzolana*, with intermediate bands containing small pieces of tufa. They would appear to represent an early filling or levelling of the scarp on that side, and the levels have been cut through by those digging down through the top of the *cuniculus* (*ibid.*, fig. 12, Section FF', levels 2-4) in order to fill it, as well as by a large pit (*ibid.*, Pit 1. Section AA').

These three groups of sherds constitute some of the occupation debris of the earliest inhabitants of the knoll by the North-west Gate of Veii and they can be compared with the pottery found in the neighbouring cemeteries where they would have buried their dead: in the presumably associated cemeteries of Grotta Gramiccia (G.G.) just opposite, as well as the contemporary cemeteries of Casale del Fosso, Picazzano, Quattro Fontanili² and Vacchereccia. The comparison is interesting. There are from the excavations a limited number of finger-grip handles, sherds with combed-and-dot, cord-impressed and incised ornament comparable to the handles and decoration on the Villanovan urns found in the cemeteries at Grotta Gramiccia and Quattro Fontanili as well as many more, rather smaller, examples of the biconical bowls often used as lids for the latter. Much more frequent, however, in these early Veian occupation groups are the sherds from the sub-Appennine type of cordoned vessel with finger-tip impression or slashing on the cordons or rim, which appear to have been the standard type of storage jar in domestic use in Lazio and S. Etruria,³ the decorated urn perhaps being reserved mainly for funerary purposes.⁴ In Rome, these jars with finger-tipped cordons and everted rims are themselves used as containers for the funerary urn and its accompanying vessels, as well as being found in occupation levels,⁵ but such sherds so far have been very infrequently found in the cemeteries around Veii.⁶ Another, perhaps fortuitous, discrepancy between funerary and domestic types is the scarcity in the 1957-58 excavations of the horned handles so common in the tomb groups—only one was found—and of the high pedestal bases, common in the later Veian tombs.⁷ Squared

² The material from Giglioli's excavations in the Grotta Gramiccia cemeteries, now in the Villa Giulia, is being prepared for publication by Sig.ra Anna Paola Vianello. An interim publication of the Quattro Fontanili excavations, conducted on behalf of the Superintendency by the Institute of Etruscology of Rome University and by the British School, is in preparation and will describe a representative series of tombs. I have received every facility for looking at this material and for quoting comparisons from it.

³ Cf. examples from the San Giovenale excavations, the Tolfia region, Torre Chiaruccia, etc., *B.P.L.*, ns. x, 65, 1955-56, fig. 2; from Rome, *E.R.* III, fig. 35, 18, *E.R.* II, fig. 79, 1; Ardea, *Skrifter Utgiva av Svenska Institut i Rom* xxi, iii,

Tav. VII.

⁴ Cf. the material from the Tolfia area, where decorated Villanovan sherds and impressed cordoned vessels are found both in occupation levels, *ibid.* fig. 12, and funerary deposits *ibid.*, figs. 10 and 11, from La Mattonara.

⁵ *E.R.* II, figs. 66-67, figs. 73-74, and *E.R.* III, fig. 35, 18, fig. 39, 4.

⁶ Sherds found at Q.F. (M.16. N and L. 14). Sig.ra Vianello reports a dolium with finger-tip impressions on the rim and containing a red impasto olla, as a funerary urn from Grotta Gramiccia, Tomb No. 684.

⁷ *E.g.*, at G.G. (GGX) *PBSR*, xxix, 1961, fig. 33, 21 and Palm, Vac. XV, pl. XXIV, 6 etc.

lugs, again of sub-Appennine-type,⁸ and pieces of oven or cooking stands also seem parts of purely domestic articles. The ovoid jar, too, with everted rim, the standard kitchen pot, is found very rarely among the funerary vessels.

With these comparisons in mind, Group A1, and perhaps Group A3, would be contemporary with the earlier graves at Grotta Gramiccia and Quattro Fontanili with their paucity of pottery types, the comb-decorated Villanovan sherds and the biconical bowls that are common to both. The small clumsy jug (fig. 1, 18), however, which is similar to the mugs found later in Group A2, does not seem to be represented in these earlier graves. Group A2 contains mixed occupation debris, although still with the earlier forms found in Group A1. It has the thinner impasto biconical bowls with cord-impressed decoration,⁹ fluted bowls,¹⁰ little fine impasto cups,¹¹ a little thin-walled bucchero and sherds of red impasto. There are also more open bowls and ovoid jars with everted rims. Except rarely for the latter, these types are found in the later graves at Grotta Gramiccia (G.G.) and Quattro Fontanili and in the earlier graves at Vacchereccia,¹² but the six examples of cordoned impasto jars (fig. 4, 30-33), common at Vacchereccia,¹³ and found at Casale del Fosso¹⁴ Grotta Gramiccia (G.G.X.)¹⁵ and Quattro Fontanili (Q.F.X.),¹⁶ show that these occupation tips also contain somewhat later material.

(a) *Group A1*¹⁷

The most easily recognisable jars, mainly impasto, or coarse-ware, were those with varying types of finger-tip or tooled decoration on roughly applied cordons. There were thirteen different examples of these, the majority coming from large jars with flared rims; two of these had the top of the rim also tooled. Two sherds coming from large coarse-ware vessels with flattened rims (Nos. 2-3) and two sherds with the cordons defining a small hole or vent may be parts of ovens (Nos. 7-8).

A number of impasto biconical bowls, or bowls with gently incurved rims, came from this level. There were sixteen plain examples, ten of them heavily made, two of them of coarse-ware; two others with small lugs, one of them decorated with combed lines, and two with handles, one of them decorated with incised chevrons.

Three of the total of nine sherds of decorated Villanovan ware and one sherd showing a row of stabbed incisions are shown on pl. Va. The small finds from this group (spools, a piece of baked clay with a key-pattern) are shown on fig. 22, 22 and 12 respectively.

These are the main types from the earliest group, though there were also sherds from five jars with everted rims, a handled jug, or mug, and a fragment of lid. One small sherd of red impasto was probably intrusive, and no bucchero or painted sherds were found in this level.

Fig. 1

1. Large impasto rim, badly fired red-grey ware. The flared rim and the cordon below the neck are decorated with rough finger-tip impressions.
2. Large hand-made, coarse-ware rim, of red clay, burnt black outside, with a roughly tooled cordon on the body. This may be part either of a large jar or an oven.

⁸ Torre Chiaruccia, *ibid.*, fig. 5, 2.

⁹ *PBSR*, xxix, 1961, fig. 33, 33B.

¹⁰ Q.F., G. 25, H. 13; Palm, Vac. XIX, pl. XXVIII, 10.

¹¹ *E.g.*, a group from Q.F., F. 16.

¹² Palm, Vac. XV, XIX, pl. XXIV and pl.

XXVIII.

¹³ *Ibid.* Vac. X, pl. XXI, 1 and 2.

¹⁴ In the Villa Giulia, no. 804.

¹⁵ *PBSR*, *op. cit.*, fig. 33, 21B.

¹⁶ *Ibid.*, fig. 40, 5.

¹⁷ 'Excavations' p. 53.

3. Impasto flat-topped rim similar to No. 2 above and from either a large jar or an oven. It is made of red clay, burnt black-brown outside, with exterior rough lines of burnish and a very roughly applied cordon on the body.
4. Rim of open impasto bowl (or lid) with roughly tooled cordon; brown-ware.
5. Impasto sherd showing raised cordon roughly impressed, red-clay, fired grey outside and only burnished on the exterior.
6. Impasto sherd of red-brown ware, with broad cordon decorated with finger-tip impressions.



FIG. 1. GROUP A1. SCALE 1/4

7. Impasto sherd showing impressed cordon surrounding circular hole, possibly an oven vent; dark red clay, roughly burnished inside and out. Cf. *E.R.I.*, fig. 266.
8. Similar sherd to No. 7; dark red-grey, coarse-ware.
9. Impasto bowl with rim bevelled for lid; dark-grey ware.
10. Similar bowl with flat upright rim; dark-grey ware with pale orange-brown slip.
11. Similar bowl with shorter upright rim; dark-grey ware smoothed inside and burnished outside.
12. Smaller, similar bowl with incurved lip; dark-grey ware.

13. Similar bowl with inverted rim and narrow vertical lug below it; combed decoration of vertical and horizontal lines on the body. Dark-grey ware burnished both sides and brilliantly on the outside.
14. Similar roughly-made biconical bowl with rim bevelled for lid, and blunt oblong lug; dark-grey ware.
15. Small bowl of coarse-ware with thin inbent rim; red-grey ware.
16. Small, very roughly-made cup, of hand-made, red-grey, coarse-ware with handle broken off.
17. Impasto bowl with incurved rim of gritty red clay, partially fired black, and decorated with roughly incised chevrons below the rim. There is an omphaloid base and low pedestal foot and the handle is broken off.
18. Very roughly-made impasto jug with vertical handle; red-brown ware.

Pl. Va.¹⁸

1. Small, thin impasto sherd with impressed cord-decoration between lines; dark, well burnished inside and out.
2. Combed pattern with dot at corner of inner square; grey impasto burnished outside.
3. Decoration of criss-cross combing; dark impasto burnished outside.
4. Impasto sherd of red-brown ware with row of stabbed incisions. Cf. similar decoration in the Tolfa region. *B.P.I.* ns. x, 1955-6, fig. 11, 9, p. 478.

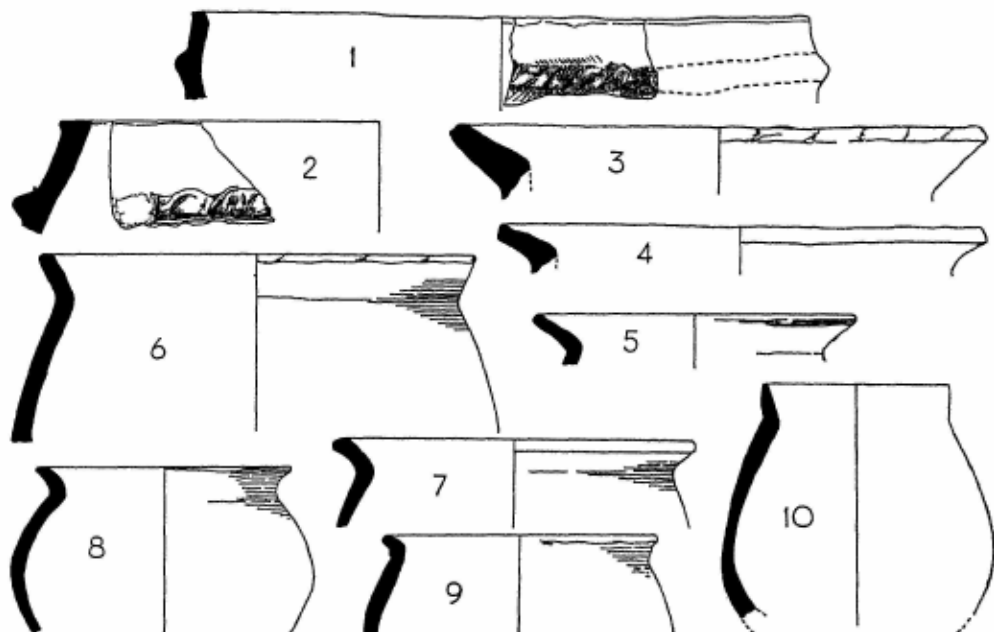


FIG. 2. GROUP A2: JARS. SCALE 1/4

(b) Group A2¹⁹

The material from this group contains many of the features of Group A1; tooled or finger-tip impressed cordons, often on heavy impasto jars with flared rims, incurved bowls, handled cups, pieces of oven (pl. XIa, 1; pl. XIb) jars with everted rims and sherds with combed or incised decoration (pl. Vb). Three handles of Villanovan type with finger-grip grooves (pl. VIa, 2, 3, 4) and another (pl. VIa, 1) with the addition of a button terminal decorated with a cord-impressed design, five

¹⁸ Five sherds with traces of combed pattern and dot not illustrated; also one with cord-impressed

pattern, probably from the same pot as no. 1.
¹⁹ 'Excavations', p. 53, Section AA', level 3.

squared horizontal lugs²⁰ (fig. 23, 4-6), a finely decorated piece of pot-stand or brazier of lustrous black impasto (fig. 22, 14) and two perforated sherds, probably parts of strainers,²¹ (pl. Vb, 4) were also found in these levels. But Group A2 contains later types as well. Principally, these are the same biconical bowls as the earlier ones but often decorated with chevrons, or diagonal lines of cord-impressed pattern and made of thin, fine impasto often burnished to a black lustrous finish. New types too are the bowls or jars with undulating cordons on the neck and the vertically fluted jars copied from metal prototypes.

There are a number of red impasto sherds, including a horizontal handle probably from a small amphora, and four sherds of bucchero. Two of these are from thin-walled small cups, and there is a similar sherd from the body of a pot. Four sherds of painted ware, two of which are too small for identification, were also found.

Fig. 2

Jars

1. Rim of wide-mouthed impasto vessel with flattened rim and faintly tooled cordon below it; grey-brown ware, fired red inside.
2. Rim of similar pot to No. 1 with the finger-tip decorated cordon applied separately; light-red clay, burnished externally, and the inside of the pot cracked by heat (pl. VIb, 1).
3. Heavy out-turned impasto rim, faintly tooled externally; red-grey ware.
4. Rim similar to, but lighter than No. 3.
5. Rim similar to Nos. 3 and 4 but from a smaller pot; dark-grey ware.
6. Impasto jar with slightly tooled rim as in No. 3; red-brown ware.
7. Rim from jar similar to No. 5; dark-red ware burnished internally and over the rim, but not outside. Cf. Palm, *Vac.* VI, pl. XV, 3 and Pic. X. pl. I, 1.
8. Short everted rim from small globular jar; red-ware fired black inside.
9. Short everted impasto rim; red-ware burnt or fired black inside.
10. Hand-made, coarse-ware jar with upright neck and slack shoulder; red-grey ware heavily burnt inside.

Fig. 3

Bowls, etc.

11. Very roughly-made impasto open dish; red-brown ware, burnt black inside and round external base.
12. Heavy impasto bowl with flattened rim; red-ware, fired grey externally and roughly burnished inside and out.
13. Small roughly-made coarse-ware bowl; orange-brown clay with tufa admixture and traces of exterior burning.
14. Roughly made impasto mug with handle; red-brown ware with burnish only surviving on the handle. Palm, *Vac.* XV, pl. XXIV, 3. for taller but similar mug, and examples from Grotta Gramiccia and Quattro Fontanili (H. 19, H. 16, F. 13, etc.) the latter with small horn-handled cups in fossa graves.
15. Small bowl with semi-circular ledge handle, the edge of which appears to have been nicked by a knife; dark-brown ware burnished inside and on the rim and with traces of an external matt-orange slip (v. below p. 47 No. 6).
16. Impasto bowl with horned lug; dark grey-brown ware. *B.P.I.* n.s. x, fig. 10, 8, from La Mattonara.
17. Incurved rim of impasto bowl with roughly incised decoration of inverted chevrons; dark-grey ware partially fired red outside.
18. Similar biconical bowl with stump of handle springing from the rim and roughly incised chevrons; dark-grey ware.
19. Biconical impasto bowl with raised handle and flanking small flat-topped knob; dark-grey ware.
20. Similar bowl to No. 19 with rounded knob below rim; black-brown ware.

²⁰ Only three illustrated.²¹ Only one illustrated.

- 21-24. Biconical impasto bowls, with rounded knob (24) or vertical lugs (22, 23) below the rim and decorated by fine cord or wire-impressed chevrons, or groups of diagonal lines. The red-grey or dark-grey ware is burnished to a black lustrous finish inside and out. Cf. bowls from Grotta Gramiccia ('G G X'), Casale del Fosso ('C D F') and Vacchereccia, *PBSR*, xxix, 1961, fig. 34, 43; fig. 37, 3 and 15 A; fig. 39, 4.
25. Small impasto cup with offset rim and globular body and flat double-loop handle; red-brown ware. Palm, Vac. XIII, pl. XXII, 5, 6.

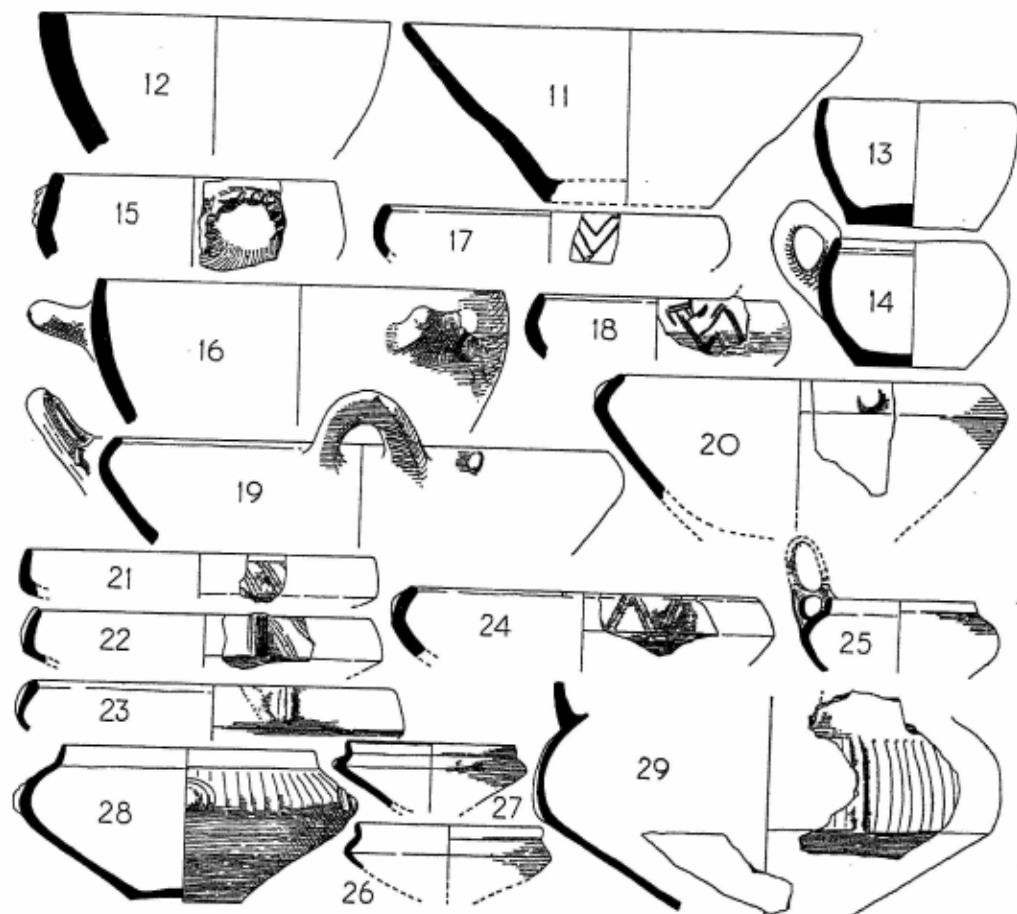


FIG. 3. GROUP A2: BOWLS. SCALE 1/4

- 26-27. Two small bowls or cups of thin impasto with offset rims and carinated shoulders. No. 27 has a vestigial knob on the carination. Both are burnished to a black lustrous finish inside and out. Cf. Q.F. (F. 16).
28. Similar type of impasto bowl to Nos. 26 and 27 but larger and with less upright rim and rounder shoulder. There are shallow vertical grooves below the neck and two semi-circular ones above the low rounded knobs on the shoulder; red-ware, partially fired black. A typical type of this period, v. Palm, Vac. XVIII, pl. XXVII, 2; also examples from G.G. and Q.F.
29. Part of a fine impasto jar with rim and base missing. There are vertical shallow grooves on the shoulder and a low vertical rib below the wide strap handle; grey clay burnished inside and out and to a lustrous finish externally. Dohan, Narce 71 M, pl. VII, 11b.

Fig. 4

Cordoned ware, etc.

30. Well-made carinated impasto bowl of red ware. The upright neck is decorated with two cordons. *v.* above p. 37 and footnotes, also Dohan, Narce 27 M, pl. XIV 11, for a similar but more ornate jar.
31. Upper part of an impasto bowl with three flat cordons on the neck; red-grey ware.
32. Upper part of an impasto carinated jar with fine cordons on the neck; dark-grey ware.
33. Jar with two cordons on the neck; brown-ware with grey core. Palm, Vac. X, pl. XXI, 1.
34. Small coarse-ware lid with hollowed knob handle; pink-grey ware.
35. Small jar with everted rim and fragment of a handle springing from it; dark-grey ware.
36. Thin impasto rim and neck, perhaps an imitation of a bucchero form, with a lustrous burnish over the dark-grey clay.

Bucchero

37. Thin-walled cup with four horizontal grooves on the body.
38. Part of cup with offset rim and fan pattern on the body.

Painted ware

39. Rim and shoulder of a *skyphos* in well-levigated buff-ware with two horizontal bands of brown paint on the external rim, a row of black dots in the handle zone and two other horizontal bands of brown paint below them. The inside is brushed all over with brown and black paint

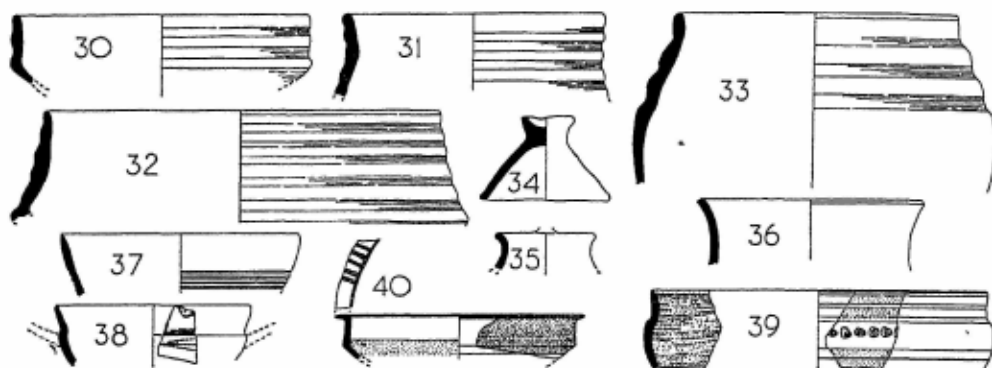


FIG. 4. GROUP A2: CORDONED WARES, ETC. SCALE 1/4

now much worn away (pl. VIIIb, 2). Mr. John Boardman notes that 'this *skyphos* is interesting as it imitates a Greek subgeometrical type which does not, however, generally descend to a mere row of blobs in the handle zone. Etruria would not have seen much in the way of Greek originals like this after the early seventh century, but it is uncertain how long the type could survive'. A sherd of the same type was also found in the Etruscan rampart tips and is shown in pl. VIIIb, 8. A number of other examples with a similar pattern of blobs are quoted in *E.R.* III (fig. 220, 35; fig. 237, 2 and fig. 256, 24).

40. Rim and shoulder of a bowl with transverse stripes of dark-brown paint on the rim; pale-brown paint in a horizontal band inside the body and over the upper part of the outer surface. A fine well-levigated orange-buff ware. Cf. Dohan, Narce 4F, pl. XII, 13 and Narce 27M, pl. XIV, 19; also Gjerstad, *B.P.I.* ns. ix, fig. 10, 2, 12, Rome, (Period IIb).

Pl. Vb.²²

1. Orange-red impasto sherd with combed pattern and dots; well-burnished externally.
2. Combed pattern on small impasto sherd.
3. Incised pattern, dark impasto burnished to lustre externally.
4. Impasto sherds showing broken holes along the bottom. (*v.* below, p. 44, 10)
5. Grey impasto sherd with combed pattern and small incised chevrons.

²² Three sherds with combed pattern and one with impressed cord pattern are not illustrated.

(c) Group A²³

Four sherds of combed Villanovan type (pl. Vc) were found in these levels, a large impasto finger-grip handle of orange-red ware (fig. 23, 3) and sherds with finger-tip impressed cordons. There are also some large open bowls, a perforated base, the top of an impasto jar with cog-decoration and grooves (No. 8), two

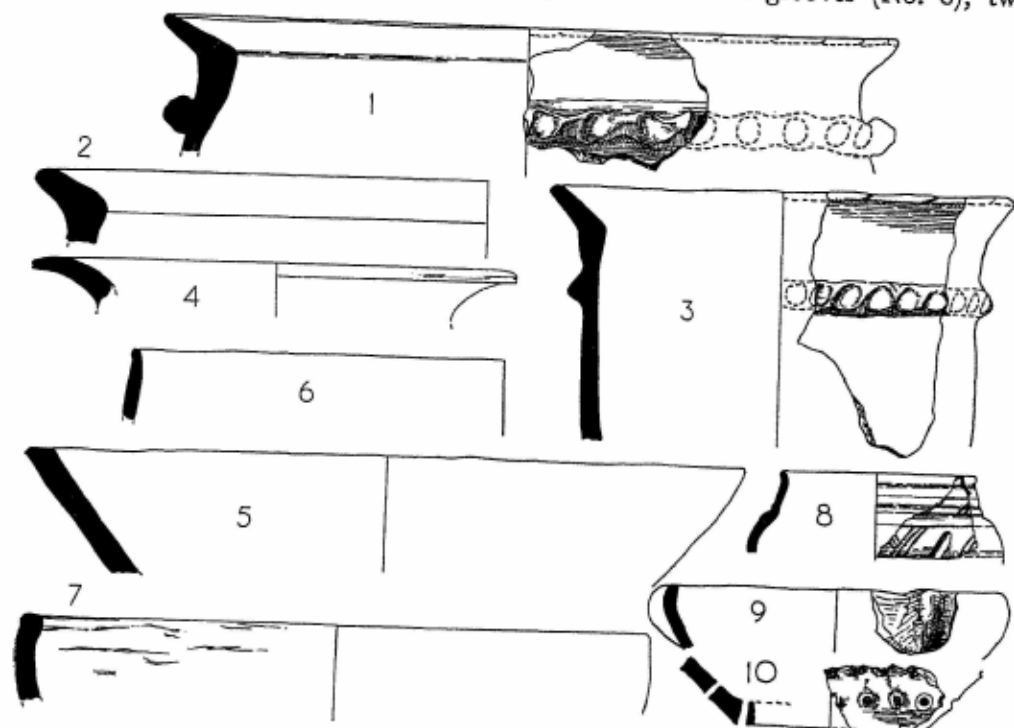


FIG. 5. GROUP A3. SCALE 1/4

fragments of large, coarse impasto dolia, three flat bases and several sherds that were brittle and cracked by heat. No red impasto, bucchero or painted sherds were found in these levels.

Fig. 5

1. Everted rim of impasto jar with finger-tip-impressed cordon; red-brown clay, burnt black inside and out (pl. VIb, 3). There are three sherds of similar type with tool-impressed cordons and another of thinner impasto with similar cordon. One of the two other rims that are probably from this type of jar, but with the cordon missing, is shown below as No. 2.
2. Similar rim to No. 1.
3. Similar rim to No. 1. The cordon is lower on the neck and the finger-tip impressions are close together and more regular; dark-grey core, fired red on the outside, burnt black externally.
4. Rim of an impasto jar. There is an external groove round the rim and the dark-grey ware has been well burnished on both sides.
5. Flat topped rim from a large, open, wide-mouthed dish; red-brown ware.
6. Slightly beaded rim of a large impasto bowl; red clay. There are two other rims from similar bowls, one roughly-made with rounded rim in coarse-ware, the other from a smaller impasto bowl with flattened rim.

²³ 'Excavations', p. 74, Section AA', levels 12, 13.

7. Large impasto bowl with flattened rim; red-grey ware.
8. Neck and shoulder of an impasto jar of dark-grey ware burnished to a lustre inside and out; red-grey core. The slight cordon between neck and shoulder has a pattern of diagonal coggled lines in a band above it, and similar lines or chevrons separated by a wide shallow groove below it.
9. Roughly made impasto bowl with vertical lug; brown-ware with dark burnish inside and out.
10. Impasto base of a perforated jar of brown-clay. Another similar base was found in the Etruscan rampart and two more from Group A2. These sherds are from larger straining vessels than the perforated skimming ladles shown in Dohan, Narce 24M, pl. XVII, 7. The shape, and distribution of the holes also differentiate them from the specialized Appennine type of strainer.

Pl. Vc.²⁴

1. Neck and shoulder of well-burnished dark impasto. There is a pattern of incised chevrons and dots above impressed cord pattern between lines.
2. Heavy sherd with combed decoration and impressed dot at the surviving corner of the square frame; dark-grey impasto, smoothed externally.
3. Probably part of the same jar as No. 2, showing more combed pattern.

3. *Timber Structures of the Earliest Phase*²⁵

This material comes from the filling of those post-holes and gullies which appear to be earlier, and not connected with, the later rectangular timber building. The occupation levels associated with these structures were stripped off to prepare for

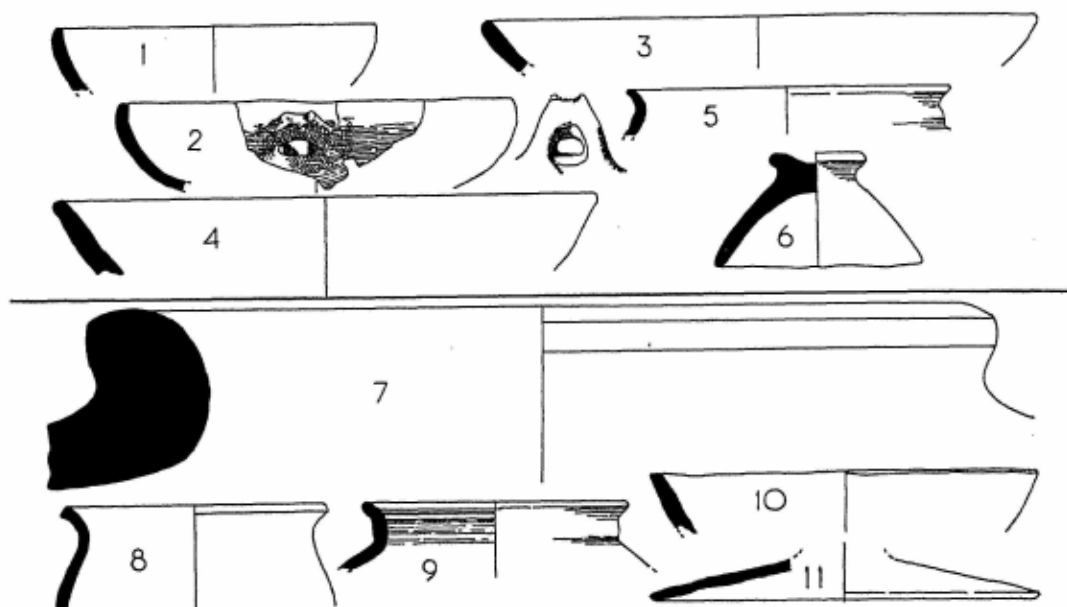


FIG. 6. POTTERY FROM THE TIMBER STRUCTURES OF THE EARLIEST PERIOD. SCALE 1/4

the later building and would seem to have been thrown over the forward slope. These have already been discussed in Groups A1 and A2. The material actually found in the post-holes and gullies on the crest was very scanty and, as in Groups A1 and A2, consisted mainly of bowls and of jars with everted rims. Some of these post-holes seem to have supported a large, slightly elliptical hut and the sherds

²⁴ One sherd with combed pattern not illustrated. ²⁵ 'Excavations', p. 50, fig. 6a.

from this, shown separately (Nos. 7-11), indicate that it was probably the latest of these early structures.

The sherds are mainly impasto with some coarse-ware, both hand-made and wheel-turned; there is some red impasto, some fine impasto, and heavy dolium sherds from two post-holes of the elliptical hut (P. 19b, P. 37), as well as from P. 11 and P. 18. A small sherd of painted ware comes from P. 14 (pl. VIIIb, 1).

Post-hole 19a contained a small red clay horse's head (fig. 23, 2; pl. VIIb, VIIc, 3) part of a small clay object with incised lines (fig. 22, 13), and part of a clay stand (pl. VIIc, 1), all of burnished impasto. Post-hole 18 held part of a similar burnished stand (pl. VIIc, 2) as well as a blue glass 'eye' bead (fig. 22, 10).

Fig. 6

Post-holes not associated with the Elliptical Hut

1. Possibly wheel-turned, open bowl, smoothed but not burnished inside; red-grey ware (P. 29).
2. Impasto bowl with slightly horned horizontal handle; dark-grey ware, (P. 18). Cf. *E.R.* III, fig. 31, 1, from huts near the Scalae Caci (Period III), and earlier examples from Q.F. (I. 21, 1 and AA-BB. 15-16).
3. Open dish of hand-made, grey coarse-ware (P. 16b). Three red impasto sherds also came from this post-hole.
4. Wheel-turned impasto open dish of red-grey ware, burnished on the inside only (P. 18).
5. Wheel-turned impasto jar with a slight swelling around the neck; red-ware with grey core, burnished outside only (P. 16a).
6. Small, very roughly hand-made, coarse-ware lid, with knobbed top, partially fired red and black (P. 21).

Elliptical Hut

7. Wheel-turned, heavy coarse-ware dolium, red-ware with grey core (P. 37). There are also dolium sherds from P. 19b.
8. Everted rim and shoulder of an impasto jar, probably wheel-turned; dark-brown ware burnished inside only and over the rim (P. 22).
9. Rim of an impasto jar, probably wheel-turned, with a slight swelling around the neck (see above, No. 5) and shallow grooves on the inner surface; light-red ware, burnished to orange-red externally (P. 19a). There are also red impasto sherds, including a horizontal handle, from this post-hole.
10. Hand-made coarse-ware open bowl of red-grey ware (P. 8b).
11. Very roughly-made flattish impasto lid, partially fired red and dark-grey and only burnished on the upper surface (P. 19a).

4. *Pottery from the Rectangular Timber Building and the Stone Building*

Perhaps the most striking feature is the relative poverty of types found in these levels, as contrasted with the decorative vigour of the earlier groups. The finds, however, here only represent chance sherds from the fillings of the post-holes and gullies of the Timber Building, and those found in the make-up of the later Stone Building, the actual occupation material having been stripped off later in preparation for the Etruscan defences.

The two main forms which seem to have been in common use in both periods are ovoid jars of various sizes with short everted rims, and open bowls with flattened or rounded rims. Except for one fragment of a semi-circular ledge-handle,²⁶ the sherds recovered from the Timber Building are featureless; the only evidence for date is the absence of such earlier forms as biconical bowls and finger-tip impressed cordons, and the presence in the Stone Building levels of wheel-turned and fine

²⁶ See below p. 47, No. 6.

impasto and a red-impasto jar with internal grooving on the rim. The finds, too, from the elliptical hut (see above, p. 45), which would seem to have immediately preceded the Timber Building, imply a date for the latter in the first half of the sixth century B.C. Besides the sherds found in the make-up of the subsequent Stone Building, the filling of the drainage channel which lay in front of it contained sherds that would seem contemporary with an early phase of its occupation. These show an increasing amount of red impasto, including a very coarsely-made plate, as well as fine impasto wares and thin-walled bucchero; there is an absence of later forms. The Stone Building itself was ultimately demolished to facilitate the erection of the Etruscan fifth-century town wall, and its later occupation levels were probably stripped and incorporated into the tips of the great earth bank above it.

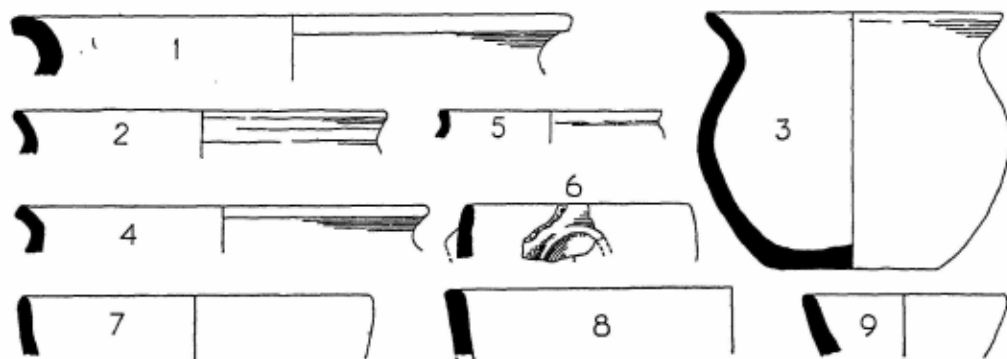


FIG. 7. POTTERY FROM THE RECTANGULAR TIMBER BUILDING. SCALE 1/4

(a) *The Rectangular Timber Building*²⁷

This stratified material comes from the filling of the post-holes and gullies of the Rectangular Timber Building, which were filled and levelled prior to the erection of the stone structure above it. Amongst the few impasto and coarse-ware sherds, the main types appear to be open bowls and small ovoid jars with everted rims. There is some red impasto and many of the post-holes and gullies have a quantity of daub in them, coming probably from the wreck of the timber building of which they formed part. From post-hole 7b came five clay loom-weights, one of which is shown on fig. 23, 1.

Fig. 7

1. Thick, everted, impasto rim; red-brown ware (P. 12).
2. Smaller, everted impasto rim, similar ware to No. 1 (P. 12).
3. Very rough, coarse-ware squat jar, hand-made with a flat base and everted rim; badly fired red-grey clay (P. 17). No. 6 and a number of pieces of daub and a sherd from a heavy dolium also came from this post-hole.
4. Short, everted, impasto rim of red-brown clay, burnished internally and over the rim (P. 38). Two similar rims and No. 9 also came from this post-hole.
5. Flat rim from small impasto jar; dark brown ware (P. 35). No. 7 as well as four sherds from large impasto jars and a fragment of thin impasto decorated with grooved lines, also came from this post-hole.

²⁷ 'Excavations', p. 58 ff., fig. 6b.

6. Small red-brown rim of impasto bowl with remains of a semi-circular hollow lug-handle on the body; there are traces of a pale pink slip externally, and it is burnished inside (P. 17). Lugs like this, of Appennine type (*PBSR*, xxi, 1953, Monte Gargano, fig. 6, 1; fig. 7, 9 and 12), are found with Villanovan sherds in the Tolfa region; *B.P.I.* ns. x, 1955-6, fig. 12, 13, p. 479 and fig. 14, 2, p. 485. Similar lugs of semi-circular form occur in Rome in Gjerstad's Period IIA (Sacra Via) *E.R.* II, fig. 74, 6, and in his Period IIB in a stylised form (Esquiline) *E.R.* II, fig. 208, 1. V. also on miniature pot at Q.F. (M. 9, S.W.).
7. Open impasto bowl, red-brown clay (P. 35).
8. Plain upright rim of large coarse-ware bowl, hand-made (P. 26). Some daub and two sherds of red impasto also came from this post-hole.
9. Small red-brown, open, impasto bowl (P. 38).

(b) *The Stone Building*

Three phases of the construction of this building²⁸ may be distinguished, although they are presumably contemporary.

The first (Phase 1) material comes from the layer of tightly packed, broken tufa ('Excavations', pl. XXXI, Section AA', Level 4) with which the builders levelled up the ground after filling up the post-holes and gullies of the rectangular timber building, before starting to construct their walls on more or less the earlier lines.

Secondly (Phase 2) a few sherds came from amongst the stones which probably form the rough western wall of the stone building above Gully 2 at the north end of the structure.

Thirdly (Phase 3) there was the material from the make-up between the two walls of the entrance-corridor ('Excavations', fig. 11, Section BB', Level 5).

Fig. 8.

Phase 1

This level contained both impasto, including one flat base, coarse-ware sherds, some red impasto and four sherds of fine impasto, including a low pedestal base. There are fragments of a heavy coarse-ware dolium and two bucchero sherds. A thick impasto sherd with rounded corners, probably used as a rubber, also came from this level.

1. Everted rim of red impasto. Dark-red burnished slip with concentric grooves on the upper surface of the rim.
2. Rim and part of a flattened double-loop handle from a small carinated cup; thin dark-brown impasto, burnished externally.
3. Rim of a small bowl with slight shoulder. Dark-brown, thin impasto with a lustrous exterior burnish.

Phase 2

From here there are coarse-ware and impasto sherds, including two flat bases and some fine impasto fragments. Half a clay spindle-whorl, grooved like a melon (fig. 22, 17) also comes from this level.

4. Wheel-turned, high neck and everted rim of thin impasto jar imitating a bucchero type. Black-brown ware with highly burnished, lustrous exterior surface.
5. Small carinated cup similar to No. 2, of thin, probably hand-made, dark-brown fine impasto, with flared rim and low foot-ring. It is burnished to a lustrous surface externally. The handle has been broken off. Cf. *E.R.* III, fig. 233, 5-8, from the Archaic *pozzo* near the Temple of Vesta.
6. Small, very roughly made impasto bowl with flattened rim, burnished inside and out over red-brown core. There are fragments of two other similar bowls, one of impasto, the other of fine impasto.

²⁸ 'Excavations', p. 62 ff., 6c, and 9.

Phase 3

The pottery from these levels includes impasto, wheel-turned and hand-made coarse-ware, and red impasto, the latter including a handle probably from a small amphora. There are two bucchero sherds, and some of thin impasto with a lustrous burnish, including a flat handle with five vertical striations. The main types are open bowls, and impasto jars with short everted rims, cf. the open bowls (Nos. 12-15) and the ovoid jars (Nos. 7-10) with the tomb group (Tomb II) from Veii, Casalaccio (Torraccia), *N.S.* 1935, Tav. 1, 2, p. 45-6. There were three painted sherds, but only two of identifiable proportions.

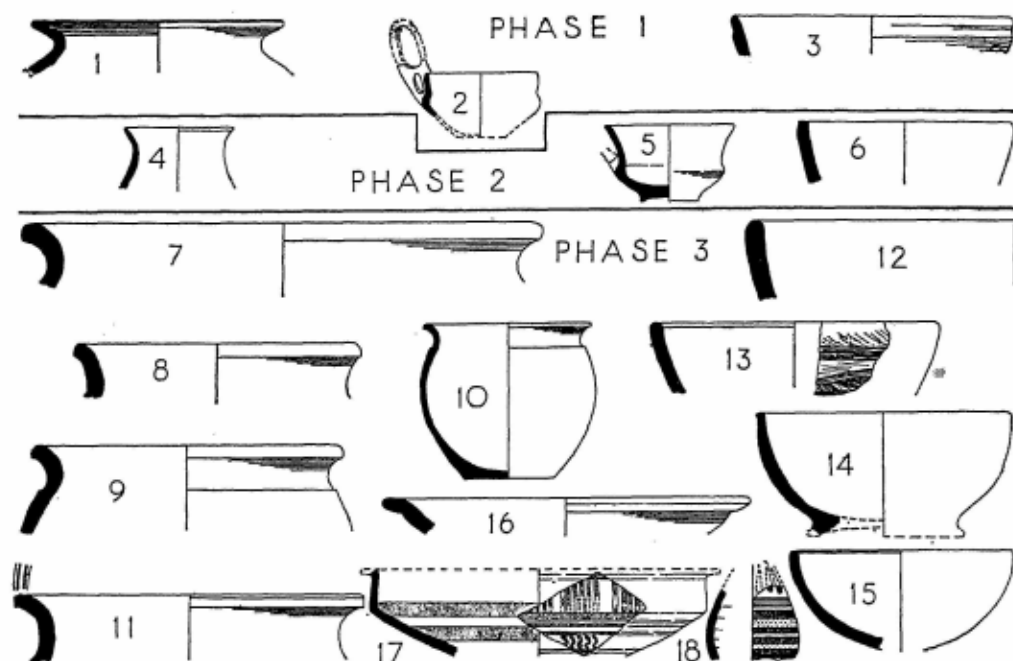


FIG. 8. POTTERY FROM THE STONE BUILDING. SCALE 1/4

7. Short everted impasto rim; red-brown ware, burnished internally and over rim.
8. Jar similar to No. 7, but smaller.
9. Upper part of an impasto jar with everted rim and slight groove below the neck, probably wheel-turned. Dark-grey ware with red exterior slip, burnished inside.
10. Well-made, small globular impasto jar, similar to, but smaller than, No. 9 with short everted rim; dark-brown ware burnished internally and over the rim and burnt inside.
11. Short everted rim of well-fired, orange ware, perhaps much worn red impasto, probably wheel-turned. The lip is sharply squared off and there are two shallow grooves on its upper surface.
12. Large, heavy impasto bowl, red-brown clay, burnished externally and over lip.
13. Wheel-turned bowl similar to No. 12; dark-brown ware, with exterior markings from brush or rough cloth.
14. Hand-made, coarse-ware open bowl of red clay, burnished inside and on top of rim. There are the remains of a basal foot-ring.
15. Well-made, small bowl similar to No. 14, of brown ware, burnished inside and on top of rim, but with rim bevelled inside. Cf. *PBSR*, xxix, fig. 33, 21 (Grotta Gramiccia 'GGX').
16. Open impasto dish with flat out-turned rim, partially fired red and black, and highly burnished inside and out.

17. Part of an Italic imitation of a Corinthian *alabastron*; fine buff ware with cream external slip. There are remains of two tongues in metallic grey paint and, below them, three narrow horizontal bands followed by wider bands, also in the same paint. These are grouped in two sets, with a band of dull maroon between them, and separated by a narrow reserved strip. *V.* notes on the Protocorinthian aryballos below, fig. 9, 11.
18. Body of bowl or goblet with narrow horizontal bands or orange paint and two wide reserved bands (pl. VIIIb, 3). The upper one has vertical lines of orange paint grouped in fives, and the lower one vertical wavy lines also in fives. The interior is decorated with wide horizontal bands of darker, orange-brown paint; cf. Dohan, Narce 4F, pl. XII, 12 and Vulci 22, pl. XLVII, 14.

(c) *Fill of Drainage Channel in front of the Stone Building*

Some impasto fragments, coarse-ware, red impasto including a rim with concentric, exterior grooves, and one sherd of thin, fine impasto come from level 6 ('Excavations', fig. 11, Section C—C'), the lowest filling in the drainage channel in front of the stone building, which antedates the construction of the kerb.

Sherds from levels 8 and 9 ('Excavations', pl. XXXI, Section A—A'), the upper filling of this channel, include a number of red impasto fragments, thin-walled bucchero and fine impasto. Four of the common open bowls and seven jars with everted rims were present, and also fragments of two painted vases. The absence of later types would suggest that the channel became redundant, and was filled in, during the earlier occupation of the Stone Building towards the middle of the sixth century.

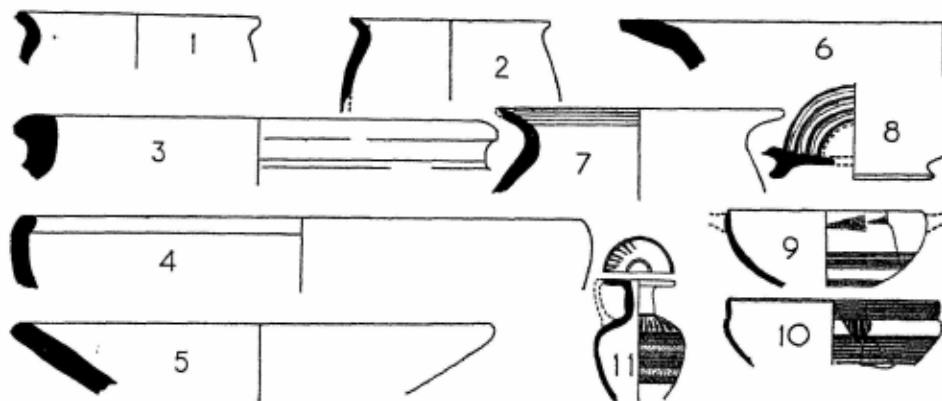


FIG. 9. POTTERY FROM THE FILL OF THE DRAINAGE CHANNEL. SCALE 1/4

Fig. 9

1. Small jar with everted rim, probably wheel-turned, of red clay, fired grey externally, and perhaps burnished inside.
2. Similar jar to No. 1, wheel-turned coarse-ware, grey clay.
3. Flattened dolium rim, wheel-turned coarse-ware, red clay.
4. Inverted rim of thick impasto bowl, red-brown clay, burnished inside.
5. Open impasto bowl or large lid; grey clay fired red externally.
6. Rim of red impasto dish or plate, probably wheel-turned; roughly made with no slip or burnish on under side or edge of lip.
7. Sherds from red impasto jar, probably wheel-turned with concentric grooves on upper rim.
8. Base, probably wheel-turned, of red impasto with internal concentric grooves.
9. Small thin bucchero cup with inbent rim and good black surface. There is a fan pattern below the rim and scored lines on the lower body; late seventh century B.C. Cf. L. Pareti, *La Tomba Regolini-Galassi*, Tav. LXII, 478.

10. Finely made bowl of thin, orange-ware with horizontal and vertical bands of bright orange paint externally, and orange paint thickly over the inside, except for a reserved band at the edge of the rim. Mr. John Boardman notes that 'this sort of cup was made in Corinth from the early 7th century, probably to beyond 650 B.C. The clay here is a little too ruddy for Protocorinthian, but this does not rule out the possibility of it being a fine Cumaeian imitation.'
11. Protocorinthian *aryballos*, probably of Etruscan manufacture; buff-ware decorated with dark metallic, purple-maroon and red-brown bands. There are petals of dark metallic paint below the neck and on the rim. Mr. John Boardman notes that 'the shape in Corinth barely survives the 7th century, but these are still found in Etruscan graves of the first half, or at least the first quarter, of the 6th century'. Cf. *E.R.* II, fig. 230, 1, in a sixth-century tomb group.

5. Levels beneath the Etruscan rampart (1957 excavation)²⁹

These levels are shown in 'Excavations', pl. XXIX, as levels 2-4 and consist of successive levels of dark material, including the contents of a pit. Most of the sherds were impasto or coarse-ware, but there were also red impasto vessels, grey bucchero of sixth to early fifth century B.C. date,³⁰ a number of fine impasto sherds, including four from biconical jars with cordons and a small piece of a black-figure cup of the third quarter of the sixth century B.C. Three sherds of combed Villanovan ware and one piece with a finger-tip impressed cordon survived from earlier strata. Archaic tiles also came from here. These levels appear to be occupation debris of varying periods; the occurrence of the late sixth to early fifth century bucchero giving a clue to the date of the building of the Etruscan rampart above them.

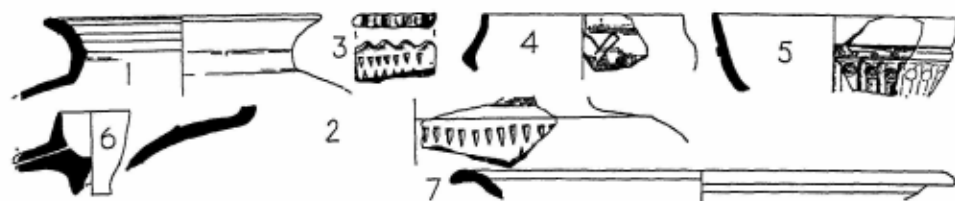


FIG. 10. POTTERY FROM THE LEVELS BENEATH THE ETRUSCAN RAMPART, 1957. SCALE 1/4

Fig. 10

1. Upper part of wheel-turned, red impasto jar with flared rim, grooved internally; gritty red-brown ware with red external slip starting half way down the neck and slightly burnished.
2. Shoulder of red impasto jar, perhaps wheel-turned, with stamped dog's tooth ornament below cordon at base of neck; red slip only on and below cordon. Cf. similar ornament on No. 3 below, and from the Etruscan rampart (fig. 18, 17).
3. Red impasto sherd burnished to lustre with denticulated edge and stamped dog's tooth decoration on upper surface. Probably part of the handle of a plate. Cf. Palm, *Vac.* VIII, pl. XVIII, 6, for a similar handle without decoration.
4. Fine impasto early bowl with knob on body and chevron of scored lines; grey-ware with black slip burnished to lustre inside and out.
5. Fine impasto cup with horizontal cordon decorated with small circles above wide vertical grooves with superimposed spirals; red clay with dark-brown slip, burnished to lustre inside and out. Cf. Palm, *Vac.* IX, pl. XX, 9, for a similar type of bowl.
6. Impasto child's feeding cup; yellow-grey clay. A larger feeding cup with handle and incised chevron decoration was found at Q.F. (J. 12).
7. Out-turned rim of heavy grey bucchero bowl, much worn. Late sixth to fifth century B.C. Another fragment of similar grey bucchero was also found as well as bucchero sherds of earlier type.

²⁹ 'Excavations', p. 43.

³⁰ Information from Mrs. B. Redmayne.

6. Pit 1

The group consists of material from a large pit³¹ dug into the natural tufa and the clay-like *pozzolana* underlying it, on the west, and, on the east through the deposits from which come Group A3. Except, perhaps, for a sterile tip of small tufa chippings lying round the western edge of the pit, the upper strata consist of various tips of redeposited material containing numerous sherds of mixed date, charcoal and burnt stones. These tips would appear to represent the occupation rubbish of the huts on this side of the knoll, thrown back as filling into the pit prior to the building of the main Etruscan rampart.

The sherds from these levels are a mixture of impasto and coarse-ware, some of the latter wheel-turned. There is a dish of fine red impasto (No. 11) and sherds from six other red impasto jars, four of them wheel-turned. Six bases were found,

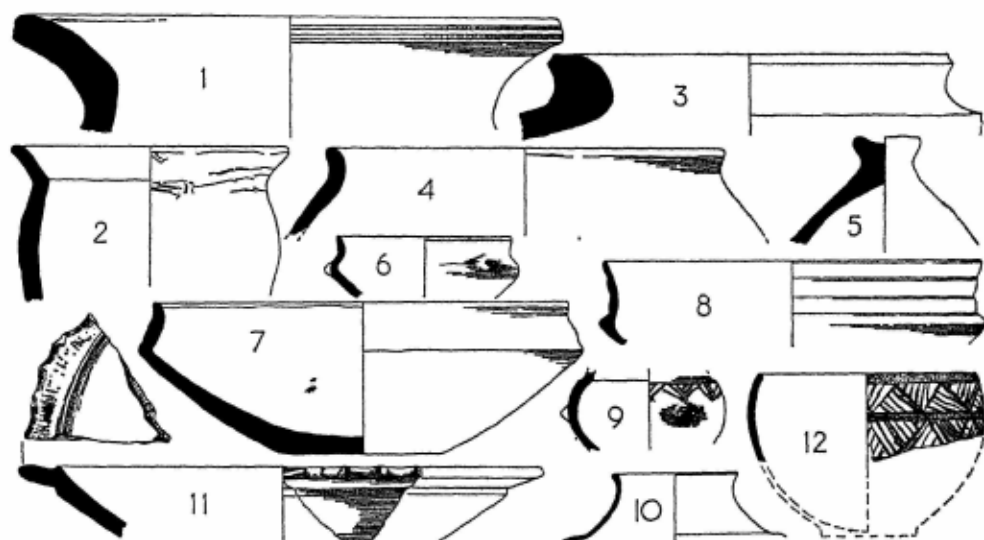


FIG. 11. POTTERY FROM PIT 1. SCALE 1/4

two of them burnt and all of them flat except for one in thin coarse-ware which has a slight foot ring. There are also sherds of thin impasto, some of them imitating bucchero forms. Thick sherds from at least two large dolia were found, one sherd with combed Villanovan decoration and one painted *skyphos*. Fragments of a bronze ferrule, a clay bobbin (fig. 22, 19) and part of flat-topped piece of vesicular basalt,³² the top smoothed with wear and probably used for grinding corn, also came from these levels.

Fig. 11

1. Wheel-turned, red-ware impasto jar, of which the heavy flared rim, now with burnish on the upper rim only, has two shallow grooves on its outer edge. Cf. a jar with external grooving on the rim in *PBSR*, xxix, 1961, fig. 32, 18, from Grotta Gramiccia ('GGX').

³¹ 'Excavations', p. 70, pl. XXXI, levels 16-18.

³² I am grateful to Prof. Judson for this identification.

2. Small jar with angular, everted rim, very roughly made, red coarse-ware. This is partially burnt on the lower body and the inner surface is cracked by heat. There is a sherd from a similar jar with a rounded rim in impasto.
3. Rim of a wheel-turned (?) large coarse-ware dolium; red core with grey centre, and pinkish red slip inside and out. The rim is out-turned with flattened top and hollow bevelled edge.
4. Short everted rim of a large jar of wheel-turned impasto, red-grey ware.
5. Knob-topped lid of hand-made coarse-ware, fired red outside and dark grey inside.
6. Small impasto cup or bowl, with carinated shoulder and small boss projecting from it; grey core highly burnished inside and with traces of burnish externally. Cf. similar cups from Group A2, fig. 3, 26-27, above.
7. Conical impasto bowl, with carinated shoulder and flat base; the clay is partially fired pale-brown and black and burnished vertically outside and inside, except for horizontal burnishing on the interior rim. Similar bowls from Grotta Gramiccia ('GGX'), *ibid.* fig. 34, 34.
8. Wheel-turned, carinated bowl with two low cordons on neck; red-yellow ware. Cf. Group A2 fig. 4, 30-33, above, and Palm, Vac. VI, pl. XV, 6, 8.
9. Sherd from a small, rounded impasto jar, with traces of burnish inside and out, over a grey core. There is a band of chevrons, stamped perhaps by a notched tool, just below the neck with an impressed dot at the apex. Below the decoration is a small sharp projecting boss. The same type but without chevron decoration is found in Tomb GG at the Sacra Via in Period II B, *E.R.* II, fig. 105, 4.
10. Upper part of a thin wheel-turned impasto jar, perhaps a spiral amphora. Buff ware partially fired black and with orange-red external slip burnished to lustre.
11. Shallow dish of red impasto, probably hand-made, with much worn dark-red burnished slip inside and out. The flat projecting flange springs from below the rim of the dish and has a wavy edge.
12. *Skyphos*, orange-brown ware with a glossy cream exterior slip decorated with hatched triangles of orange-red paint in two bands (pl. VIIIb, 4). A very similar but more coarsely potted *skyphos* was found at Vacchereccia. Cf. Palm, Vac. X, pl. XXI, 20.

7. Pit 2

The lower part of this small but very prolific pit³³ was exposed at the south side of Trench V.16/19, sealed by the silting from the Etruscan rampart and cutting into the level which overlay the earlier pits and gullies in this area. The material from the filling was much richer and more varied than any of the other stratified deposits and contained a quantity of bucchero sherds, mainly from cups and chalices but also two fragments of jugs and four strap handles. There were impasto copies of bucchero cups, a fine spiral amphora, red impasto plates and amphorae, and a number of painted sherds, most of which are too small for accurate identification, although three *skyphoi* are shown below. Amongst the impasto sherds were those from the usual thick open bowls, two large jugs and a heavy dish with a lug flush with the base. A sherd of Group B ware (p. 55, below) was also found here and half a flat clay spindle whorl (fig. 22, 18).

Fig. 12

Impasto and coarse-ware

1. Impasto open dish; red clay burnished inside.
2. Base of a heavy impasto dish with flat bottom and lug almost flush with it; red clay burnished inside and out. There is a similar dish from an earlier horizon, with a pierced lug, flush with the base, shown from excavations at Monte Castellaccio (G. Scarabelli, *Stazione Preistorica sul Monte del Castellaccio presso Imola*, 1887, Tav. xvii, 7); also a surface find from an Etruscan site (Map reference: Formello 856597).
3. Upper part of an oblique-mouthed jar; well-fired red clay with grey core, smoothed externally. This sloping rim is reminiscent of earlier types, Puglisi, *Civiltà Appenninica*, Tav. i, and *Mon. Ant.*, xxii, fig. 14, from Cumae, but here is of advanced potting technique.

³³ 'Excavations', p. 70, fig. 10.

4. Upper part of a large, handled well-fired impasto jug; grey clay with orange-red burnished slip inside and out.
5. Coarse-ware small open dish or lid; soft, pink ware with black augite grits.
6. Wheel-turned fine impasto spiral amphora with roughly scored decoration of inverted loops on the neck and a circled cross between scored lines on the shoulder; red clay with dark brown slip burnished externally and over the rim.

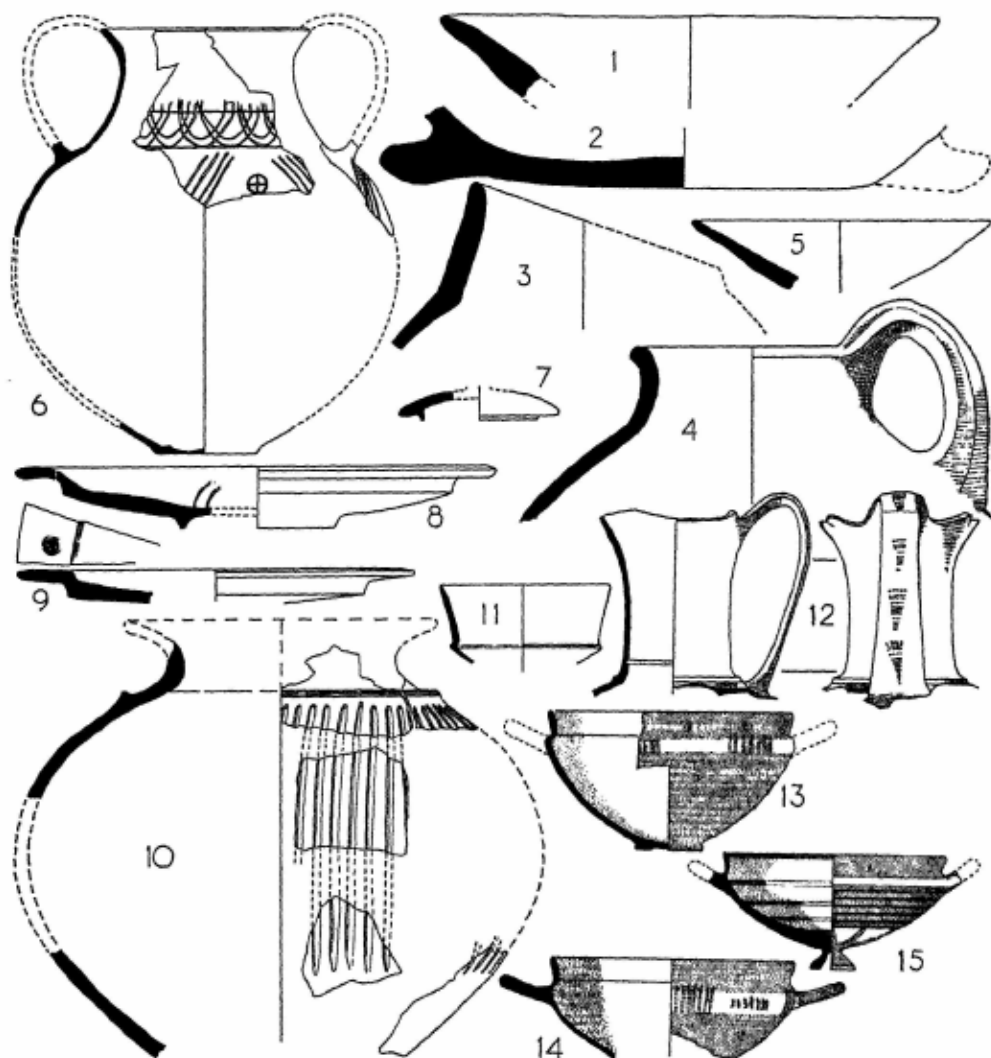


FIG. 12. POTTERY FROM PIT 2. SCALE 1/4

Red impasto

7. Small wheel-turned lid; burnished on top only.
8. Wheel-turned plate with string-hole at edge of flat rim and two concentric grooves on internal base.

9. Wheel-turned plate with palmette-shaped stamp on top of wide flat rim. *V.* similar stamps on shoulder of a red impasto olla with vertical fluting, *B.P.I.* ns. ix, 1954-55, p. 293, fig. 12, 1, no. 4 from near the Arch of Augustus, and *E.R.* II, fig. 257, 3, from the Palatine.
10. Fragments of a jar with vertically fluted body, cf. Dohan, Narce 21, pl. XL, 1, etc.

Bucchero

11. Chalice with surface almost completely worn off. Early sixth century B.C.
12. Upper part of *oinochoe* with lip and tall handle decorated with fan patterns; traces of fan pattern on shoulder also. Late seventh century B.C.

Painted ware

13. Italo-Protocorinthian *skyphos*, buff ware with brown paint outside and inside, except for reserved band decorated with brown vertical stripes in groups of seven, and the centre of the external base (pl. VIIIa, 1). Dohan, p. 92, gives notes on this type of cup, Vulci, 22, pl. XLVII, 9. Mr. John Boardman remarks 'this deep cup I would have thought probably the first half of seventh century.'
14. *Skyphos* of buff ware painted inside and out with dark brown paint partially fired orange-red except for a reserved band on the shoulder which is decorated with alternating long and short vertical stripes in groups of seven in similar paint. Dohan, p. 29, gives a full discussion of these in which they are thought to last into the seventh century B.C.; Narce 27M, pl. XIV, 17 and 18, Vulci 42 F, pl. XLIX, 22.
15. Similar type of pink-buff *skyphos* with bands of grey-brown metallic paint inside and out, but very worn inside, and roughly drawn rays rising from small pedestal base (pl. VIIIa, 2). Mr. John Boardman notes that this 'foot would not be expected in Greece before 650 B.C., and the coloured bands within are quite un-Corinthian.'

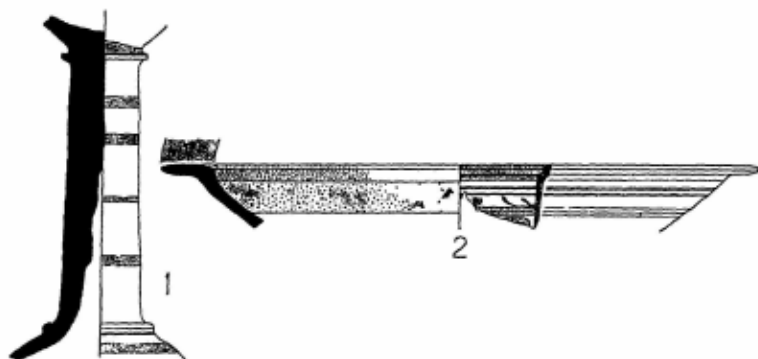


FIG. 13. POTTERY FROM THE Cuniculi: PAINTED WARES. SCALE 1/4

8. *The Cuniculi*

The cuniculi found both in the 1957 and 1958 excavations³⁴ appeared to have been broken into and deliberately filled prior to the building of the Etruscan rampart, and the material in them provides a valuable *terminus post quem* for the dating of the latter. They contained, as well as a number of earlier sherds, a quantity of three particular types of pottery which have been illustrated and described separately below, Groups B, C, D, (pp. 55-59; figs. 14-17; pls. IX-X). The earlier pottery from the *cuniculus* on the eastern slope of the knoll ('Excavations', fig. 12) included several thick impasto sherds with raised cordons decorated with finger-tip impressions or roughly tooled slashes, some combed Villanovan ware, bucchero and fine impasto. The two pieces of painted ware illustrated above were found in the filling and have some contemporary dating value.

³⁴ 'Excavations', fig. 2, pl. XXIX, p. 44 and fig. 12, p. 68.

Fig. 13

1. Tall stem of a dish with the bowl and base broken off. The pink clay contains specks of mica. There are six horizontal bands of orange-red paint on a white slip externally and the slip extends under the foot. These tall painted stands have been found on the Palatine; *E.R.* III, fig. 51, 84 and fig. 52, 32 ('subarchaic painted ware') with sherds from sixth to early fourth century B.C.; *E.R.* III, fig. 85, 24 with sixth to first half of the fifth century pottery, and *E.R.* I, fig. 529, from the area S.W. of the *Equus Domitiani* with fifth to third century sherds. There is also a similar stem from Falerii Veteres in the Villa Giulia with fourth-third century saucers (no registration number visible). These stems would appear to be derived from the Italo-Corinthian goblets with shorter stems, also painted with narrow bands, e.g. Poggio Buco, Tomb E, pl. XIII, 15.
2. Sherd from a bowl of pink-ware with flattened rim. It is decorated with orange-brown paint on and over the rim and a wide band inside it. A narrow band of metallic grey is painted on top of this on the rim and a wider band just inside the top of the bowl. On the exterior there are narrow bands of dark orange and decoration in the same paint in the wide reserved zones (pl. VIIIb, 5).

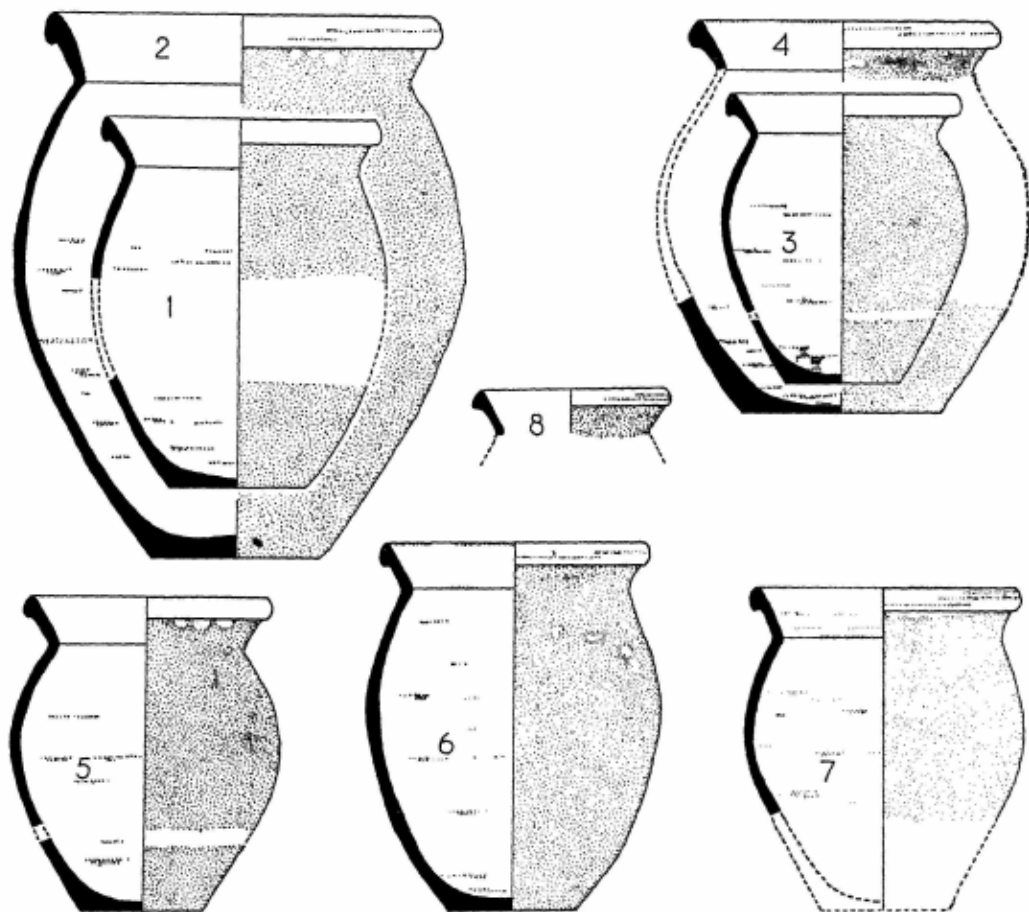


FIG. 14. POTTERY FROM THE Cuniculi: GROUP B, INTERNAL SLIP-WARE. SCALE 1/4

(a) Group B. Internal slip-ware

Sherds from at least nine jars of this well-defined ware were found together in the filling of the *cuniculus* in the 1958 excavations (Trench V.12, fig. 12, p.71).

All the jars are of the same oval form with flat bases, rounded internally, short necks and rounded overhung rims, the latter only differing in size and depth. They are wheel-turned and well-fired and the orange-red clay contains numerous small particles of grit and specks of mica. The distinguishing feature is the thick creamy-apricot slip which covers the whole inside of the jar and also the external rim (p. IXa, b). On some of the pots this slip has slightly overrun the rim on to the top of the neck. The rim and interior are well burnished horizontally and in

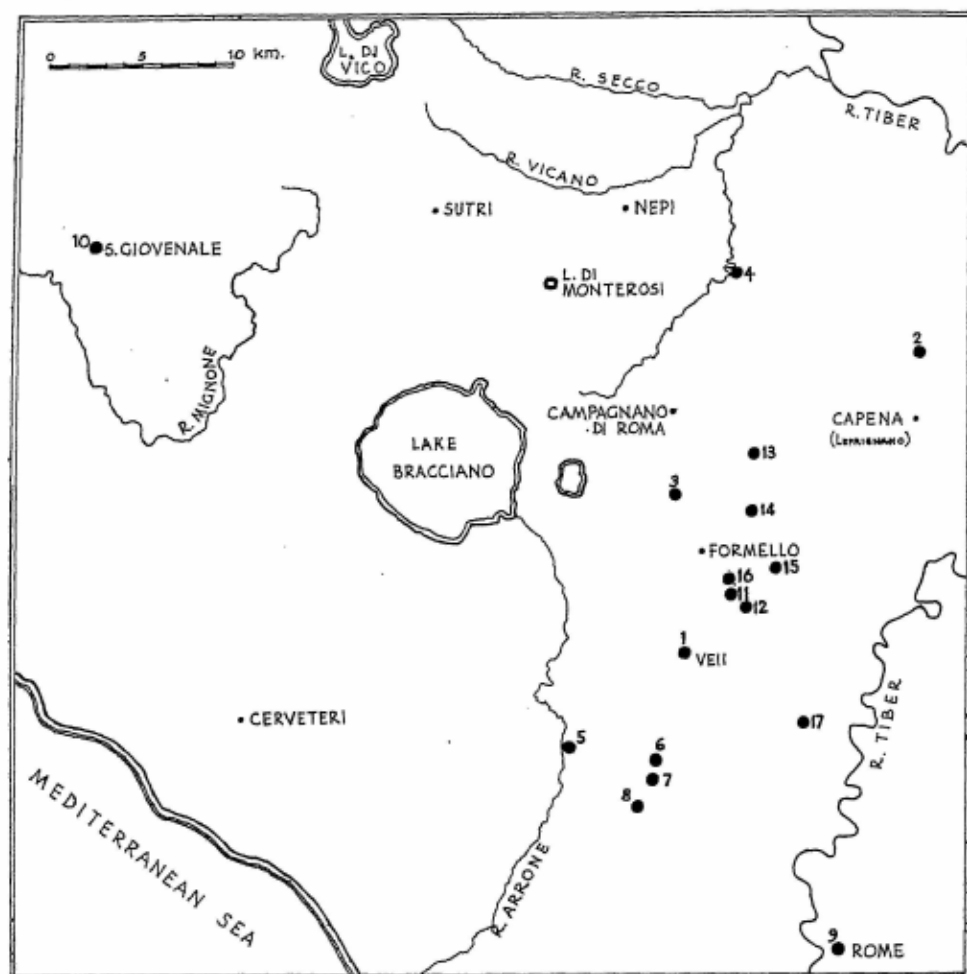


FIG. 15. DISTRIBUTION MAP OF KNOWN SPECIMENS OF GROUP B (*'Cuniculus'*) WARE. See list at foot of opposite page.

some cases the burnishing tool has gone through the slip into the clay so that the orange-red colour shows through in streaks. The exteriors of the jars appear to have been left untreated with their original matt surface, though a thin self-colour wash may have been applied. This type of internally slipped and burnished jar must presumably have been used for some specific purposes such as the storage of

food preserved in brine or oil, or of a liquid alone.

Four other sherds of this ware have been found in the excavations; two in the earth tips composing the Etruscan rampart in 1958, and one from a similar horizon in 1957. The fourth sherd was found in Pit 2.

Once this distinctive ware had been recognised, similar rims were identified on various surface sites during field work. These appeared on sites with a mixture of later material, black-glazed ware, *terra sigillata*, etc. At the excavations of the Swedish Institute at San Giovenale,³⁵ near Bieda, at least four jars of similar type and ware were found, mainly burnt, but there again associated with black-glazed ware. In the Palatine Antiquarium a number of similar sherds are shown from excavations by Vaglieri on the Germalò,³⁶ again often burnt, and others in the *Forum Antiquarium* from a pozzo with sherds of Republican date. Thus it would appear that this type of jar, already current at the time of the building of the Etruscan rampart at Veii, continued in use in a more or less standardised form for

Fig. 15—DISTRIBUTION MAP OF KNOWN SPECIMENS OF GROUP B ('CUNICULUS') WARE

(The map references are to square TG of the International Grid on the 1:25,000 maps of the Istituto Geografico Militare).

1. Veii, in the excavations by the North-west Gate (v. p. 55); also a base, a surface find, north of Veii with impasto and bucchero sherds (835574).
2. Surface find at Capena (967721).
3. Surface find on Mola dei Monti, south of Campagnano di Roma; with another Etruscan sherd as well as a quantity of Roman ware (831652).
4. Surface find, north-east of Narce; with bucchero and black-glazed ware (872769).
5. Surface find on southern spur of M. Procorio, north of Boccea; partly burnt sherd with impasto and bucchero as well as black glaze and *terra sigillata* (774515).
6. Surface find near the road from La Storta to Boccea; with one bucchero sherd as well as black glaze and *terra sigillata*. Three sherds (822510).
7. Surface find near the road from La Storta to Boccea; with black glaze and *terra sigillata* (819499).
8. Surface find near the road from La Storta to Boccea; with two other Etruscan sherds as well as black glaze and *terra sigillata* (810483).
9. Rome; from the excavations by Vaglieri on the Germalò, N.S. 1907, p. 458, figs. 31-35, many examples burnt and some with graffiti. These sherds are now in the Palatine Antiquarium.
10. San Giovenale, material from the excavations by the Swedish Institute in Rome; many of the examples are burnt.
11. Surface find on slopes of M. Aguzzo; mainly Etruscan site with bucchero and impasto sherds but also black glazed ware (868594).
12. Surface find on Selva Piana (a variant of type, probably burnt) with black glaze, *terra sigillata* and other Roman sherds and building material (876587).
13. Surface find east of track from Bivio di Formello to Campagna-Morlupo road; mainly Etruscan site with bucchero and impasto sherds but also black glaze and *terra sigillata* (879669).
14. Surface find on south side of M. Brocceto with impasto sherds as well as black glaze and *terra sigillata* (877640).
15. Surface find at north end of Pietra Pertusa ridge road, S. of Casale Pineta with scatter of early coarse ware (891611).
16. Surface find on north-east slopes of M. Aguzzo; mainly Etruscan site with bucchero, painted ware and finger-tip impressed cordoned sherd but also black-glazed ware. Three sherds (866603).
17. Surface find south of S. Michele, on Riva di Livia ridge; mainly Etruscan site with bucchero, impasto and painted ware but also black glaze and Roman coarse-ware (904526).

(N.B. Since this map was compiled a number of fresh examples have come to light and will be listed in detail in the publication of the Ager Veientanus now in preparation for vol. XXXII or XXXIII of these *Papers*.)

³⁵ I am most grateful for the kindness of the excavators in allowing me to see this material.

³⁶ N.S. 1907, p. 548, figs. 31-35.

a considerable time. A preliminary distribution map is shown on fig. 15, to be augmented as this distinctive ware is recognised in other excavations and on other sites. This distribution strongly suggests a source in the Tiber valley.

(b) *Group C. Light-coloured jugs*

The filling of the *cuniculi* under the Etruscan rampart in the 1957 excavations produced, as in the fill of the 1958 *cuniculus* above, a localized deposit of sherds. In this case there were some twenty-three sherds of well-levigated, wheel-turned, fine pale-pink or buff ware with a cream slip applied both inside and outside the vessel.³⁷ The type has a tall neck and a narrow out-turned rim, often with an exterior groove, and a small ring base. Only one example (No. 5 below) shows a handle springing from the rim, but several unattached handles were found (No. 9; pl. Xa, 7, 8). A number of similar sherds were found in the tips of the Etruscan rampart itself in 1957, and one sherd there, as well as a handle from the filling of a *cuniculus*, appears to be a waster, suggesting the possibility of a local kiln.

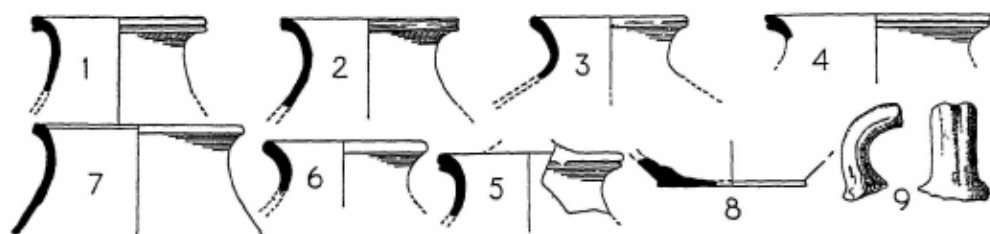


FIG. 16. POTTERY FROM THE *Cuniculi* AND FROM THE ETRUSCAN RAMPART: GROUP C, LIGHT-COLOURED JUGS. SCALE 1/4

Fig. 16

1. Tall neck and out-turned rim of buff-ware with matt cream slip externally and internally; there is a groove running round the outside of the lip. From the Etruscan rampart (pl. Xa, 4).
2. Pink-ware with grey core; the cream slip is partially fired pink, except on the lip and the inside of the upper neck, and the outer lip is lightly grooved. From the filling of a *cuniculus*. There is a similar rim from the Etruscan rampart (pl. Xa, 2).
3. Pink-ware jug with shorter neck and slightly grooved lip. The cream slip is partially fired pink. From the filling of a pre-rampart *cuniculus* (pl. Xa, 5).
4. Grooved lip of a jug in buff-ware with cream slip inside and out. From the Etruscan rampart (pl. Xa, 3). Cf. *E.R.* III, fig. 50, 82, showing a very similar rim with pottery down to the fourth century B.C.
5. Grooved rim and neck of a jug in orange-buff ware with a cream slip inside and out. There is the beginning of a handle coming from the rim. From the Etruscan rampart (pl. Xa, 6).
6. Similar to No. 3 but with ungrooved lip. No trace of cream slip. From the Etruscan rampart (not illustrated).
7. A wide jug neck of pink-buff ware with cream slip inside and out. From the filling of a pre-rampart *cuniculus* (pl. Xa, 1).
8. Base of pink-buff ware with cream slip. From the Etruscan rampart (pl. Xa, 10).
9. Handle of pink ware with grey core, pink slip. From the filling of a pre-rampart *cuniculus* (pl. Xa, 7).

(c) *Group D. Coarse buff or pink ware*

A number of sherds of this ware³⁸ were found in the tips forming the Etruscan rampart in the 1957 and 1958 excavations and in the filling of the *cuniculi* under

³⁷ A number of examples are shown in *E.R.* III, figs. 50 and 51.

³⁸ Also in *E.R.* III as 'sub-archaic painted ware' figs. 50 and 51.

the rampart in 1957. There are two main types, jugs and open bowls, both wheel-turned, of buff or pink clay with mica specks and thickly sprinkled with augite grits and usually with a matt cream slip. No handles were found with the jugs, although they may have had them. Perhaps belonging to this group is a painted bowl with wide rim (No. 7).

Fig. 17

Jugs

1. Gritty buff-ware with cream-matt slip externally, as well as over the rim and outside the neck. The out-turned rim is over-hung and has a band of black paint on its upper face. There is a trace of similar paint on the body. From the Etruscan rampart 1957 (pl. Xb, 2). There are two body sherds from the *cuniculi* of 1957, under the rampart, of similar ware but showing traces of a dark band of paint at the base of the neck.
2. Pink-buff ware similar to No. 1. The band of paint on the upper surface of the rim has almost disappeared. From the Etruscan rampart, 1957 (pl. Xb, 1).
3. Pink ware with slip as in No. 1. No traces of paint on rim. From the Etruscan rampart 1957 (pl. Xb, 3); cf. *E.R.* III, fig. 51, 87, 'sub-archaic painted ware', showing a similar rim.

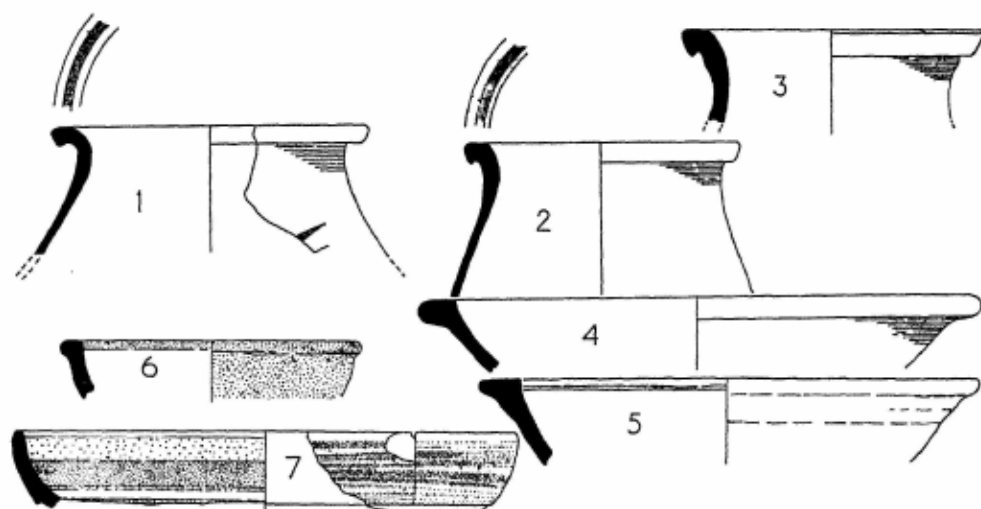


FIG. 17. POTTERY FROM THE *Cuniculi* AND FROM THE ETRUSCAN RAMPART: GROUP D, COARSE BUFF OR PINK WARE. SCALE 1/4

Open Bowls

4. Open bowl of gritty pink-ware with traces of an internal slip perhaps extending over rim. The thickened rim is out-turned with a flattened upper surface. From the Etruscan rampart, 1958 (pl. Xb, 4).
5. Bowl similar to No. 4. The cream slip is here external and stops just below the lip of the vessel. From late silting behind the Etruscan rampart 1958 (pl. Xb, 6).
6. A small open bowl with out-turned flattened rim of gritty pink-ware; dark slip externally and over the rim. From the Etruscan rampart, 1957 (pl. Xb, 5); cf. *E.R.* III, fig. 51, 35.

Painted bowl

7. Gritty buff-pink ware bowl with a wide incurved rim, and cream slip inside and out. The inside has been painted with bands of brown-maroon, black and light brown and the outside of the rim has been roughly brushed over with uneven strips of red and brown. From the Etruscan rampart, 1957 (pl. Xb, 7); cf. *E.R.* III, fig. 261, 57, from the Forum Boarium with sixth-century pottery.

9. *The Etruscan Rampart*

The sherds found in the rampart³⁹ are inevitably of very varying dates, since much of the surface earth round about must have been scraped up to form the tips of this great defensive structure. From the earliest period of the occupation of the site come pieces of Villanovan ware with combed decoration, daub from hut walls and coarse impasto sherds with finger-tip impressed cordons. Then there follow later types, cordoned ware, fine impasto copies of bucchero cups, red impasto

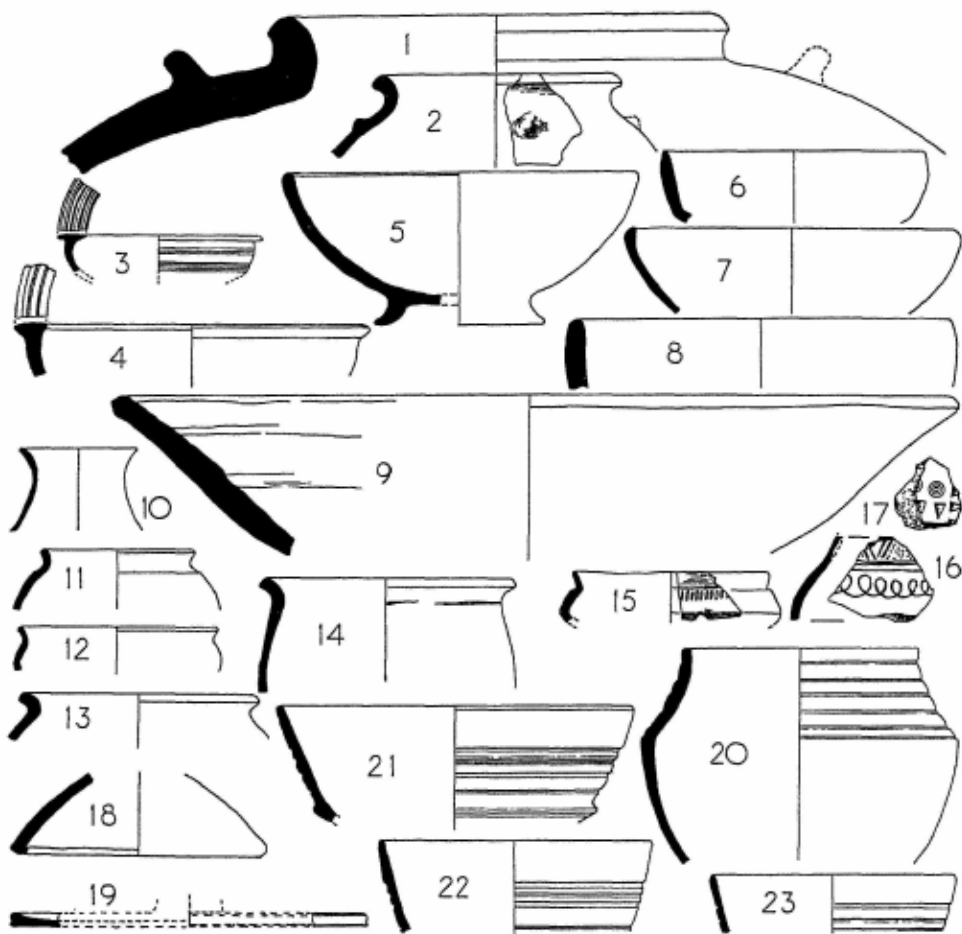


FIG. 18. POTTERY FROM THE ETRUSCAN RAMPART: IMPASTO AND COARSE WARES. SCALE 1/4

amphorae and plates, and thick bucchero bowls (figs. 18–20). It is, however, the latest sherds that are chronologically significant. There is already some dating evidence from the sherds found in the levels under the rampart in the 1957 excavation,⁴⁰ which include two sherds of grey bucchero of late sixth to fifth century date. In the filling of the *cuniculi*,⁴¹ also prior to the construction of the rampart, came

³⁹ 'Excavations', p. 66 ff., fig. 6d.

⁴⁰ P. 50 above.

⁴¹ P. 54 above.

the sub-archaic painted stem (fig. 13, 1) and the sherds of Groups B, C and D, which cannot be much earlier than the middle of the fifth century. Amongst the sherds actually found in the earth tips of the rampart, as well as sherds from the above groups, is a sherd of late archaic ware (pl. VIIIb, 9) of the late sixth-fifth century, and part of a roughly painted plate dated to the fifth-fourth century B.C. (pl. VIIIb, 12). This accumulated evidence would imply a date somewhere in the latter part of the fifth century, for this particular stretch of the defences.⁴²

Three bronze needles, a pair of bronze tweezers, a pin from a bronze brooch, two bronze hooks and fourteen iron nails, square in section with large flat heads, a clay ring and three spindle whorls were also found in these rampart-tips (fig. 22, 1-3, 5-9, 11, 15).

Fig. 18

Impasto and coarse-ware

1. Wheel-turned coarse-ware dolium with upstanding lug below rim; red clay.
2. Wheel-turned coarse-ware amphora with everted rim and knob below it; hard gritty, well-fired red clay, with red wash inside and out.
3. Pink-buff fabric of fine texture; a wheel-turned bowl with a series of concentric, incised lines on the wide flattened rim and two horizontal bands of fine grooves on the body. Probably the top of a stemmed bowl, cf. Palm, Pic. XVI, pl. III, 16; Dohan, Narce 65 M, pl. XLI, 17.
4. Impasto bowl, probably wheel-turned, with grooved rim, perhaps a heavy imitation of No. 3; orange-red clay with red external slip.
5. Wheel-turned, open, coarse-ware bowl of red clay with darker slip inside and out.
6. Impasto bowl with upright sides: red-brown clay.
7. Thin, wheel-turned impasto bowl with inbent rim; red-brown clay, burnished inside.
8. Coarse-ware bowl, probably hand-made; red-brown clay with red exterior wash.
9. Large, open, impasto dish, roughly grooved inside; dark-red ware burnished inside, the exterior burnish being largely destroyed by contact with heat.
10. Upper part of a wheel-turned, thin impasto jar with flared rim, perhaps a spiral amphora; grey ware smoothly burnished outside, and over inside rim.
11. Upper part of a small, globular, thin impasto jar with everted rim, possibly hand-made; dark, grey-brown clay, burnished inside and over rim.
12. Small jar, probably wheel-turned, similar to No. 11; thin grey-clay with pale orange slip partially worn outside and traces of interior burnish.
13. Coarse-ware, wheel-turned jar with everted rim; yellow clay with signs of buff slip externally and on rim.
14. Impasto jar with everted rim and slack shoulder; red-grey ware, smoothed outside, and burnished inside.
15. Hand-made globular bowl with offset rim. It is decorated with small vertical grooves below a horizontal line of wire or cord pattern below the neck and has a very small lug on the body. Cf. Palm, Vac. XIX, pl. XXVIII, 13, and similar shaped cups in Group A2, fig. 3, 26-27, above.
16. Impasto sherd, possibly wheel-turned, from the shoulder of a jar of fine red clay with dark brown exterior slip, burnished to lustre. It is decorated with a line of grooved loops below triangles outlined by two grooved lines and filled in with dots.
17. Thick lump of red clay with dark-red slip on upper surface; decorated with stamped concentric circles and triangles. Similar designs with circles and triangles in Zannoni, *Arcaiche Abitazioni di Bologna*, Tav. IX, 9 and 19-21. Cf. also *Mon. Ant.* xl, col. 267, fig. 71 and fig. 83d, from E. Stefani's excavations at the Piazza D'Armi, Veii, with dog-tooth triangles impressed on clay object.
18. Coarse-ware, wheel-turned, domed lid, top missing; red clay.
19. Flat, finely made, wheel-turned impasto lid, the knob missing; well-levigated grey clay, with red-brown slip burnished to lustre on both sides.
20. Wheel-turned, impasto biconical jar with horizontally grooved neck; red-brown ware burnished externally (v. fig. 4, 32-33, p. 42, above).

⁴² v. *PBSR*, xxix, p. 32, where the whole existing circuit is thought to be uniform in character.

21. Impasto copy of a bucchero cup with four body grooves; red-brown clay with grey core; burnished to lustre.
22. Similar to No. 21, but coarser, with four grooves on body; light red clay with dark red-brown slip.
23. Similar to Nos. 21 and 22; pale-grey, well-levigated clay with red slip; only three grooves now survive on the body.

Fig. 19

Red Impasto

24. Upper part of a red impasto jar with flared rim, grooved internally; probably wheel-turned, with good exterior burnish and traces of burnish inside; red clay with grey core.
25. Similar rim to No. 1, wheel-turned; fine, gritty, red-ware burnished internally, with traces of burnish on outer neck.
26. Similar to Nos. 1 and 2, red clay with dark-grey core and dark orange slip, burnished internally and on upper surface of rim.

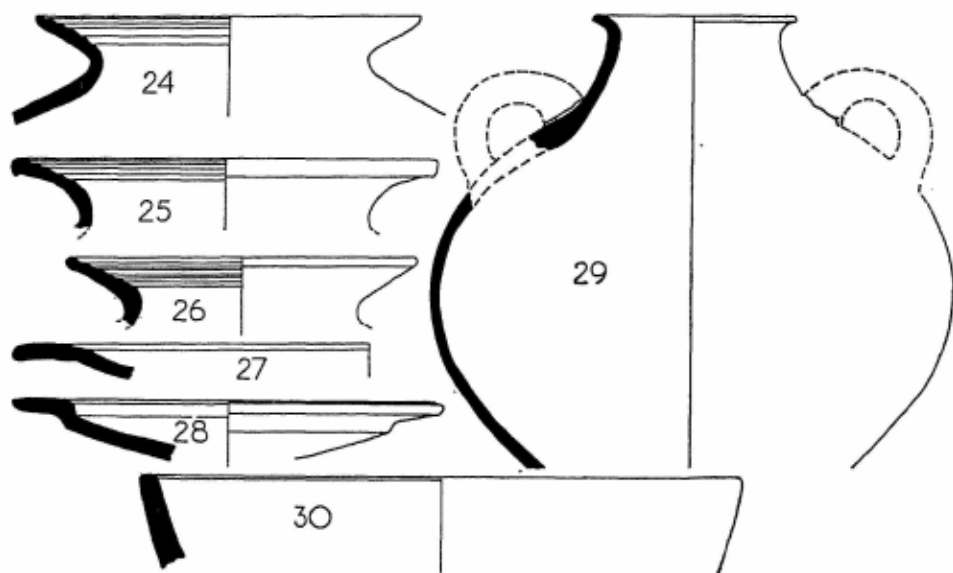


FIG. 19. POTTERY FROM THE ETRUSCAN RAMPART: RED IMPASTO. SCALE 1/4

27. Plate, probably of red impasto with upper surface burnt pale grey; orange slip externally over grey clay.
28. Red impasto plate, wheel-turned, grey clay with red slip now burnt black inside and out, except partially on rim.
29. Part of a red impasto jar with globular body and remains of a handle at the base of the narrow neck; probably wheel-turned; orange-brown ware with red external slip. For a similar jar but less finely-made, cf. Palm, Pic. XIII, pl. II, 1.
30. Thick, wheel-turned red impasto bowl of red clay with red slip inside and on top of rim; burnished on rim only.

Fig. 20

Bucchero

There are four sherds of the late seventh century B.C. (including No. 37 below) and several good sixth-century sherds, but the majority are of late sixth century date. The notes that follow are by Mrs. Brenda Redmayne. See also below, fig. 21, 2-4.

31. Heavy grey bucchero carinated dish with grooved lip; surface much worn.
32. Heavy bucchero dish with double reeded rim; surface worn on under part of bowl, and on rim. Late sixth century B.C.
33. Heavy bucchero carinated dish with small out-turned rim; surface much worn on exterior surface. Late sixth century B.C.

34. Heavy grey bucchero open bowl.
35. Thick bucchero bowl, surface worn off inside and out. Late sixth century B.C.
36. Heavy bucchero chalice with three horizontal grooves on body. Late sixth century B.C.
37. Fine bucchero chalice with three horizontal grooves on body and notched carination; fan pattern below the rim. Late seventh century B.C.

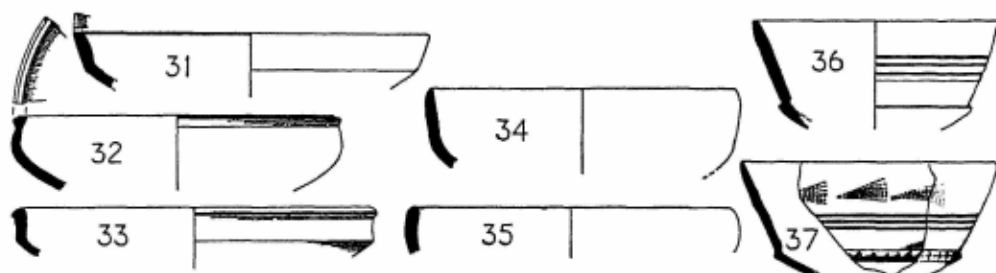


FIG. 20. POTTERY FROM THE ETRUSCAN RAMPART: BUCCHERO. SCALE 1/4

Also found in the body of the rampart were specimens of the following wares that have already been listed in other sections:

Group B. *Internal Slip-Ware*. v. fig. 14; pl. IX; p. 57, above.

Group C. *Light coloured jugs*. v. fig. 16, 1, 4-6, 8; pl. Xa; p. 58, above.

Group D. *Coarse buff or pink ware*. v. fig. 17, 1-4, 6, 7; pl. Xb; p. 59, above.

Painted Sherds. v. pl. VIIIb, 6-12; p. 66, below.

10. Deposits later than the Rampart

Overlying the tail of the rampart on the east was a level, possibly representing silt from the surface of the defences, which contained the latest datable sherd on the site. This is a small fragment of a red-figure *skyphos* dated soon after the destruction of the city in 396 B.C. Some of the other sherds from this level are shown below, including some late bucchero.

Fig. 21

1. Sherd from red-figure *skyphos* with part of white female head in profile, with a florid half palmette in front of it; pink clay with no mica specks visible (pl. VIIIb, 13). Prof. Trendall dates this sherd to c. 350 B.C. noting it as 'Etruscan red-figure, probably Caeretan'. Cf. M. A. del Chiaro for two cups with similar decoration, *American Journal of Archaeology*, lxxv, p. 56, pl. 32, figs. 5 and 6.
2. Heavy bucchero bowl with everted flat rim; surface worn over inner rim.

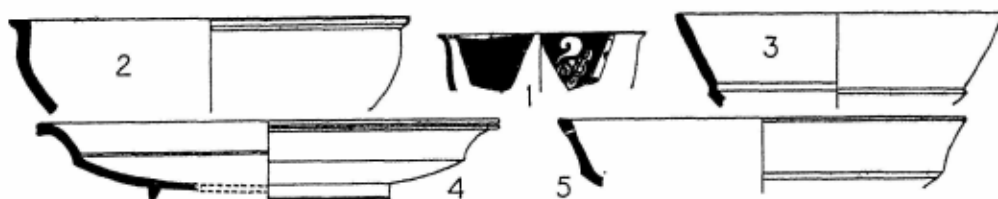


FIG. 21. POTTERY FROM DEPOSITS LATER THAN THE ETRUSCAN RAMPART. SCALE 1/4

3. Heavy bucchero chalice; surface completely worn away outside and only traces remaining inside.
4. Bucchero open bowl with grooved everted rim; carinated body and base ring; surface completely worn away inside. V. discussion on this type of bowl with examples from Veii in *E.R.I.*, p. 79, footnote.
5. Wheel-turned impasto carinated dish with lip grooved for lid and small hole below it; grey clay with black slip, burnished to lustre inside and out, imitating a bucchero type.

11. *Small finds*

Fig. 22

Metal objects

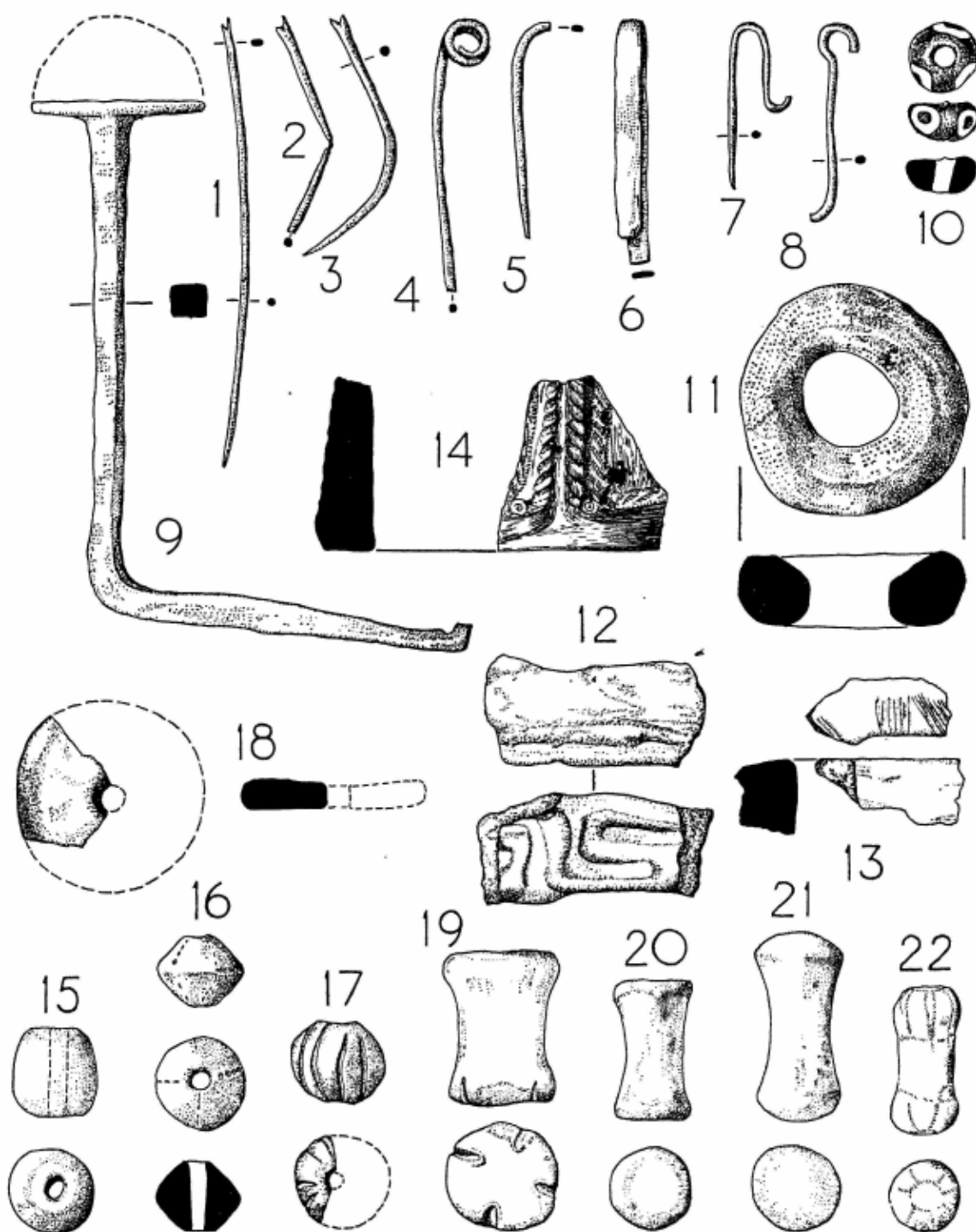
1. Thin bronze needle, 7 cms. long; most of the eye is missing. From the Etruscan rampart (fig. 22, 1).
2. Needle thicker, than No. 1 above and badly bent; most of the eye is missing. From the Etruscan rampart (fig. 22, 2).
3. As No. 2 above; 4.5 cms. long; half the eye is missing. From the Etruscan rampart (fig. 22, 3).
4. Brooch-pin with double twist spring. Unstratified (fig. 22, 4).
5. Brooch-pin with most of the spring missing. From the Etruscan rampart (fig. 22, 5).
6. Pair of small bronze tweezers; one end missing. From the Etruscan rampart (fig. 22, 6). Cf. Dohan, Narce I, pl. XXXII, 49.
7. Two small bronze hooks. From the Etruscan rampart 1957 (fig. 22, 7 and 8).
8. Iron nail, of square section, with large head (fig. 22, 9). This is one of a group of fourteen similar nails found together in a tip of the Etruscan rampart in 1957. Cf. *N.S.* xii, 1959, fig. 63 and fig. 73, from the Etruscan Temple at Santa Severa.

Miscellaneous objects

1. Small 'eye' bead of dark blue glass with three rough rings of inlaid yellow paste. From the filling of post-hole 18 (fig. 22, 10). Cf. Dohan, Narce 23M, pl. XXII, 39, and similar ones from Veii Q.F. (0, 21, 1) and G.G.
2. Clay ring, dark-grey and slightly burnished. The central hole seems too big for a spindle or for the thread of a bead. It may have been a single ring or one of a number of loose clay rings decorating a pot or pot-stand. From the Etruscan rampart tips, 1957 (fig. 22, 11). Cf. *E.R.* II, fig. 167, 7, and Dohan, Narce 2F, pl. XXXIII, 7; cf. also similar rings on Appennine sites, U. Calzone, *St. Etr.* x, Tav. xxxv, 5, and Rellini, *Mon. Ant.* xxxiv, Tav. xi, i.
3. Object of red clay with a raised meander pattern on one side. This is perhaps part of some moulding, and appears to have the imprint of wattling on one face, as if it had been pressed up against a piece of brushwood. From Group A1 (fig. 22, 12).
4. Clay object with remains of white slip and decorated on one side with scored lines. From the filling of post-hole 19a (fig. 22, 13).
5. Piece of a decorated impasto object, red grey clay with dark slip burnished inside, and to lustre outside. This is possibly part of an ornate small brazier or pot-stand. From Group A2 (fig. 22, 14). Cf. examples from Veii, in the Villa Giulia, 2499/3 and 6785/25.
6. Part of a burnished clay stand, perhaps a fire-dog. It has a rectangular base rising to an outcurved terminal and a wide shallow groove along the sides. The only surviving part of the crest of this terminal shows it to end in a small finger-tip depression. The clay is red but its exterior has been partially blackened by fire on the base and back. From post-hole 18 (pl. VIIc, 2). Zannoni found similar objects (*Arcaiche Abitazioni di Bologna*, p. 65, pl. XIV, figs. 24 and 25).
7. Stand similar to No. 6 but larger and more roughly executed. There are two wide grooves on the upper surface but none along the sides. The crest is finished with a flat top. The clay is red but blackened on the exterior top surface, and although burnished on all faces, the burnish is almost worn away on the base and upper part of the stand, presuming substantial service. From post-hole 19a (pl. VIIc, 1).
8. Top of a stand, perhaps similar to No. 6 but smaller. Red-grey clay, burnished on top and inner surface only. There is a slight vertical groove on the latter. From the Etruscan rampart (pl. VIIa).
9. Horse's head of red clay with grey core, burnished all over except under the chin. There are two wide shallow grooves up the back of the neck, the mouth is a straight groove, the ears are flatly indicated and there are no eyes. This head might be the terminal of an object similar to Nos. 6-8 above. From post-hole 19a (fig. 23, 2; pls. VIIb and VIIc, 3). Zannoni, *ibid.* figs. 1-19.

Spindle whorls

Seven spindle whorls were found, all of clay, of which four are illustrated: one biconical from Group A2, one biconical from the filling of the *cuniculus* (1958), two biconical (No. 2) and one cylindrical (No. 1) from the Etruscan rampart, one grooved (No. 3) from the Stone Building, Phase 2, and one flattened (No. 4) from Pit 2. The three not illustrated resemble No. 2.



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FIG. 22. MISCELLANEOUS FINDS: METALWORK (1-9), GLASS BEAD (10), OBJECTS OF TERRACOTTA (11-14), SPINDLE WHORLS (15-18), BOBBINS (19-22). SCALES NOS. 1-11, 1/1; NOS. 12-22, 1/2

1. Cylindrical, buff clay spindle whorl, not burnished; from the Etruscan rampart (fig. 22, 15).
2. Biconical, grey-buff clay spindle whorl decorated with cog pattern and burnished; from the Etruscan rampart (fig. 22, 16).
3. Half a brown clay spindle whorl, vertically grooved and burnished; from the Stone Building, Phase 2 (fig. 22, 17).
4. Part of a flat, buff-clay spindle whorl; from Pit 2, (fig. 22, 18). R. Peroni, *Atti della Accademia dei Lincei*, ix, Tav. XIX A.I, p. 162, for flat but slightly thicker examples, of sub-Appennine date.

Rubbers. Not illustrated

Five sherds with worn rounded edges had apparently been used as rubbers. They came from Group A2, post-hole 37, the Stone Building and Pit 2.

Loom weights

Post-hole 7b held five large roughly made loom weights of buff-grey clay; one slightly broken. They are approximately 14 cms. high with an oblong base and domed top, and a hole is pierced about 4 cms. down from the top through the shorter sides (fig. 23, 1). *V. E.R.* I, fig. 67, p. 122, where Gjerstad regards these as too heavy for loom weights, suggesting they were spit supports or stands for bobbins instead.

Fig. 22

Bobbins

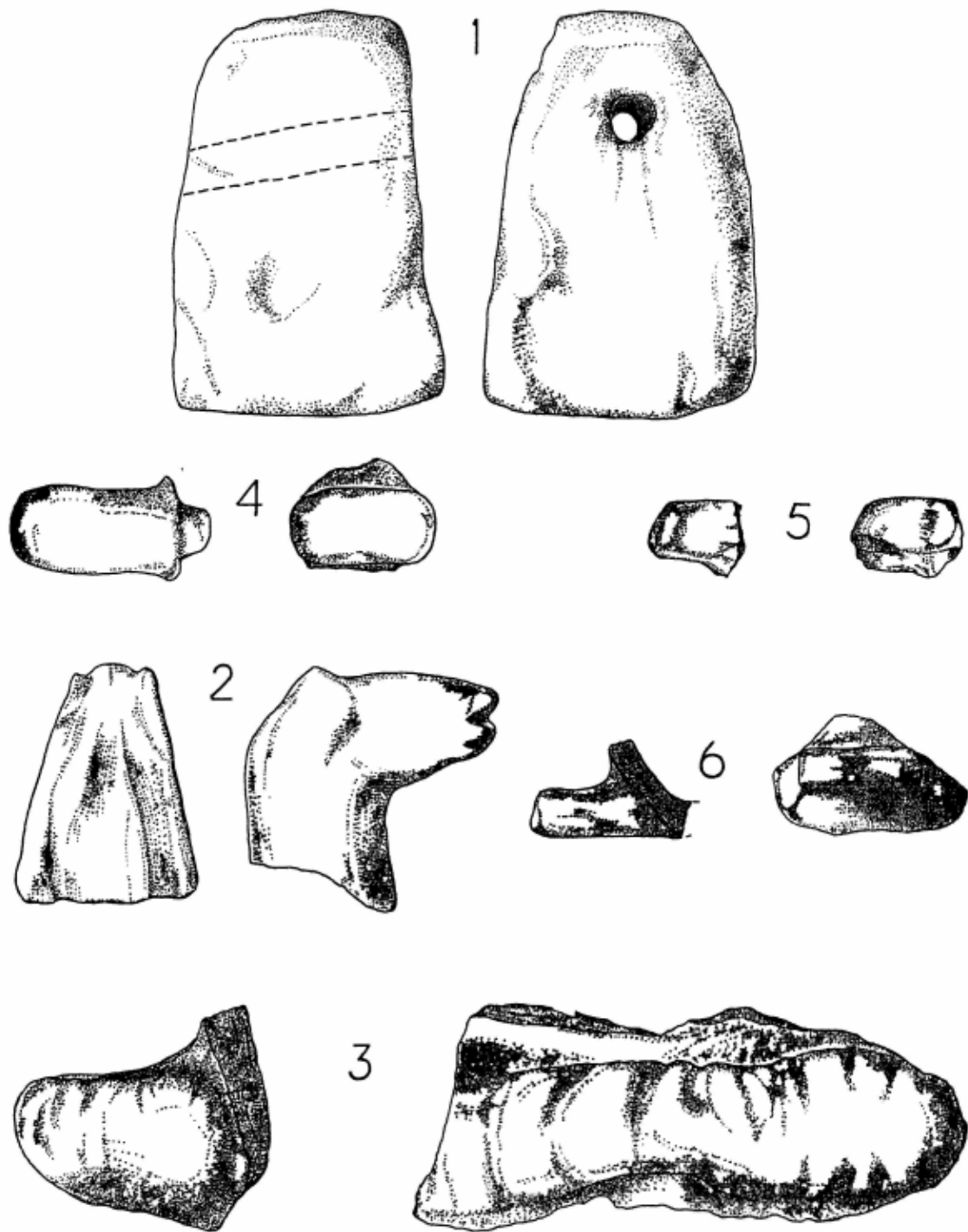
Eleven clay bobbins were found, of which four are illustrated: three with rounded ends, one of them decorated (No. 4), came from Group A1; two, one round and one flattened, from the top filling of the drainage channel in front of the Stone Building; two, flattened, from Pit 1 (No. 1); two, one round (No. 3) and one flattened (No. 2), from the Etruscan rampart; and two flattened types were unstratified.

1. Clay bobbin; one of the flattened ends has four nicks round the edge cut while the clay was soft, the other end is broken off. The clay is partially fired, dark-grey and red and is slightly burnished, Pit 1 (fig. 22, 19).
2. Small bobbin with flattened ends; dark-grey clay with orange-brown burnished slip. From the Etruscan rampart (fig. 22, 20).
3. Clay bobbin with rounded ends; the waist appears to have been shaved into shape with knife; dark-grey clay, burnished. From the Etruscan rampart tips (fig. 22, 21).
4. Bobbin with rounded ends decorated with cord-impressed lines; red clay with dark-grey core, unburnished. From Group A1 (fig. 22, 22). Cf. *Mon. Ant.* xxxix, fig. 46, from a fossa grave at Populonia; Poggio Buco, Tomb B, pl. XXII, 14 (described as weights); Zannoni, *Arcaiche Abitazioni di Bologna*, also shows many decorated examples, p. 65, Tav. XIII, 1-30.

12. Painted Sherds

Illustrated on plate VIIIb is a group of the more distinctive painted sherds from various parts of the excavations. Some of these come from groups already described, but for convenience of reference all are listed below.

1. Small sherd of thin, finely-made pink-ware with augite grits. There are four horizontal bands in orange paint externally and the same paint covers the inside. This could be of the early seventh century B.C., a close imitation of Protocorinthian, though the black grits suggest it is of Italian manufacture. From post-hole 14 (p. 45).
2. See p. 42 and fig. 4, 39.
3. See p. 48 and fig. 8, 17.
4. See p. 51 and fig. 11, 12.
5. See p. 54 and fig. 13, 2.
- 6, 7. Lower part of a bowl and part of a rim, both probably from the same pot; fine pink-ware with triangles in orange paint between horizontal bands externally, and concentric bands of similar paint inside. From the Etruscan rampart. Cf. two bowls with this type of decoration from Poggio Buco (Tomb E, pl. XIII, 2 and 3, fig. 16).
8. Rim of a *skyphos* with two horizontal bands of red-brown paint below it and a row of painted blobs in the shoulder zone. There is a painted line inside the rim and paint on the inside body. Cf. fig. 4, 39, above. From the Etruscan rampart.
9. Small sherd of fine buff-ware with narrow horizontal lines of dark brown paint and one vertical line rising from them. A late Archaic type, sixth-fifth century. From the Etruscan rampart.



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FIG. 23. MISCELLANEOUS FINDS: 1, LOOM WEIGHT (p. 66); 2, HORSE'S HEAD (p. 64; pl. VII, b); 3, LARGE IMPASTO FINGER-GRIP HANDLE FROM GROUP A3 (p. 43); 4-6, IMPASTO LUGS FROM GROUP A2 (p. 40). SCALE 1/2

10. Rim of a pink-ware lid with decoration of concentric bands of brown paint and a wavy line and large dot between them. From the Etruscan rampart.
11. One sherd, from several found, decorated with wide bands of black paint and painted blobs on the reserved zone. Thin, well-made buff ware. From the Etruscan rampart. This decoration, with rows of dots, is common on smaller vessels (*E.R.* I, fig. 83, j; at Satricum from the Temple of Mater Matuta, in the Villa Giulia, etc.) but the Veii sherds are from a much larger jar.
12. Lower part of a heavy plate with the rim missing. The outside is painted with two sets of concentric rings of orange paint with a wavy design between them. The inside has wide concentric bands of similar paint. From the Etruscan rampart.
13. See p. 63 and fig. 21, 1.

13. *Ovens, or cooking stands*

A number of sherds⁴³ from ovens, or cooking stands, were found in the excavations and five recognizable examples are illustrated on fig. 24, with tentative reconstructions. Nos. 1 and 3 came from the top soil, Nos. 4 and 5 from Group A2, and No. 2 from the Etruscan rampart. No. 1 is of a type commonly found on Appennine sites;⁴⁴ there is a heavy example from San Giovenale,⁴⁵ and a derivative type from Satricum,⁴⁶ in the Villa Giulia, with a raised rim and four small holes as well as the four larger ones. No. 4 (pl. XI*b*) which has the top missing may again have been like No. 1 but perhaps is the lower half of another Appennine type.⁴⁷ No. 5 (pl. XI*a*, 1) is of the more advanced form found in pre-urban Rome, on the Palatine⁴⁸ and Velia,⁴⁹ at the Sacra Via,⁵⁰ etc., and No. 2 (pl. XI*a*, 2) seems to be an alternative type⁵¹ to No. 1. No. 3 with its curiously domed, blind top, unsuitable for holding the base of a pot, may perhaps have been used as a baking-plate or griddle.

14. *Conclusions*

It would for several reasons be unrealistic to try to draw any extensive general conclusions from this single, small excavation in one corner of a vast and poorly studied site. One is the incompleteness of the stratigraphic series, particularly in the later pre-rampart levels, which were stripped and reused by the builders of the rampart itself. Another is the virtual absence of any comparable published material from elsewhere within the city. If only for this latter reason, however, it has seemed worth while to present as complete a picture as possible of such of the pottery and other objects as were found in what appear to be significant associations. This should be of value to future students of the site at least as offering a conspectus of the material in domestic use from the earliest stages of its occupation down to within a very short time of its final destruction. Moreover, on the important historical point of the date of the construction of the Etruscan defences, the excavation did yield, clearly and consistently, the chronological evidence that it was originally planned to obtain. Here at least is a basis for further work of the same sort.

⁴³ The body sherds, although identifiable as pieces of oven, cannot be attributed to any particular type. They came mainly from Group A2, but two pieces were from Group A1, one each from Pits 1 and 2, two from the Etruscan rampart and four from the top soil.

⁴⁴ S. M. Puglisi, *Civiltà Appenninica*, 1st edit., 1958, p. 39, fig. 14.

⁴⁵ I am grateful to the Swedish Institute for

permission to see this material.

⁴⁶ With other oven fragments, Nos. 11779-11780.

⁴⁷ Puglisi, *ibid.*, p. 39, tav. 3, 3.

⁴⁸ Puglisi, *Mon. Ant.*, xli, fig. 8 and fig. 20; *E.R.* III, fig. 32, 1 and 6, fig. 39, 9.

⁴⁹ *E.R.* III, fig. 89, 2.

⁵⁰ *E.R.* I, fig. 69 from the hut habitation.

⁵¹ Several surface finds of this oven type have been made at Veii.

One significant generalisation that does seem to be justified is that there was a very marked difference between the wares used domestically in the earliest levels, with their strong 'sub-Appennine' affinities, and those found in the contemporary

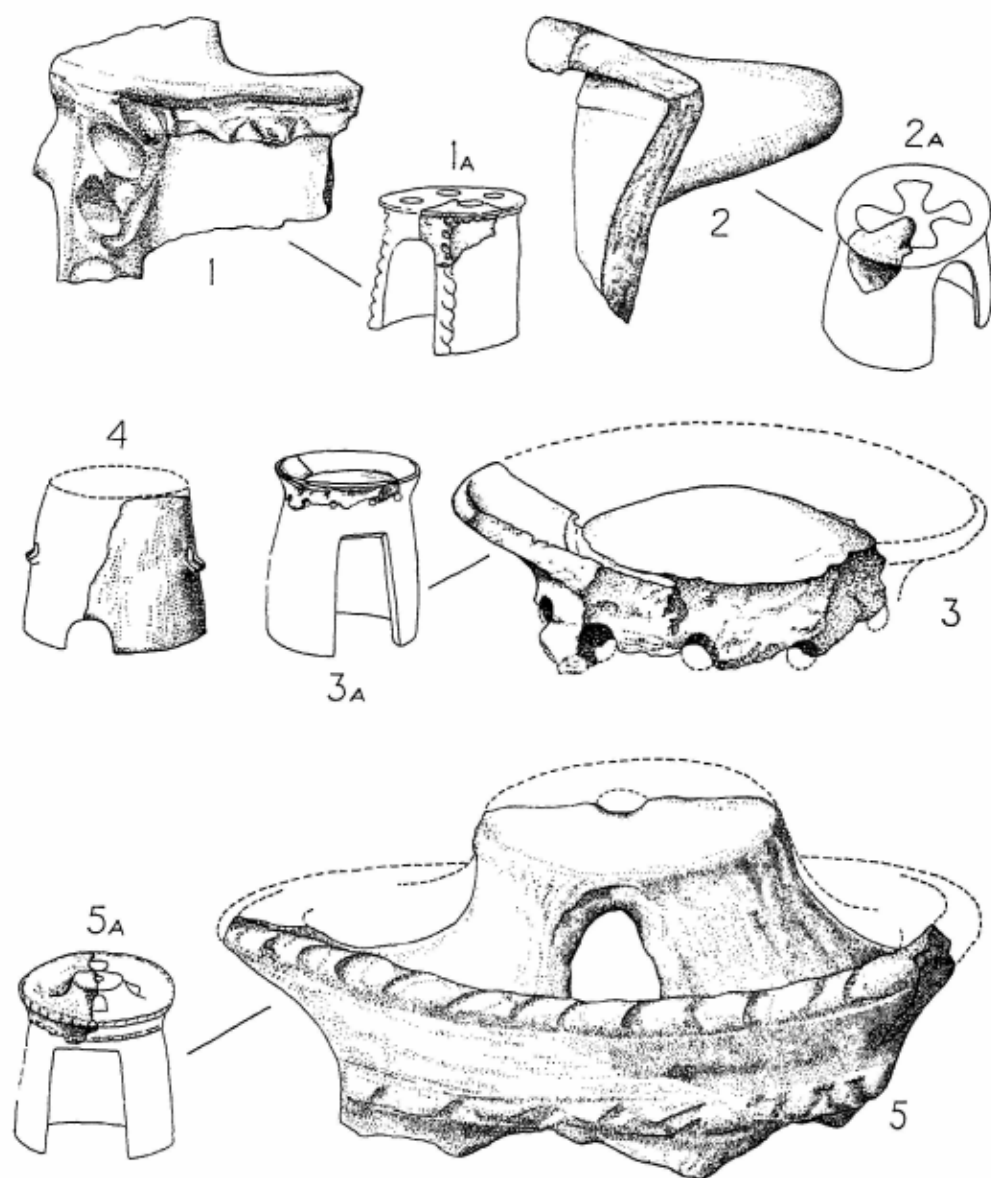


FIG. 24. OVENS OR BRAZIERS. SCALE 1/3 EXCEPT NO. 4 (1/12)

cemeteries of the Grotta Gramiccia, just opposite, which are orthodox Villanovan with very little admixture of alien or typologically earlier material. There is a

solitary burial in a dolium of the type used on the North-west Gate site,⁵² but that is all. And yet the indications, topographical as well as chronological, are that this was where the occupants of the North-west Gate site were burying their dead. One can only conclude that there was in fact a clear differentiation between the types of pottery in domestic and in funerary use. Whether this depends on ritual or on social considerations, or perhaps a mixture of both, it would be premature to try to decide. Whether again the close parallels between much of the early domestic material here and that found on the Palatine and elsewhere in Rome are the result of a specially close link between the two sites, it is at present impossible to say. Such a connection would be reasonable—Veii and Rome are, after all, less than 10 miles apart as the crow flies and connected by a very early road.⁵³ On the other hand, it must be remembered that Rome is one of the few sites for which there is any comparable body of early domestic material available. It may very well be that excavation on other contemporary sites, as distinct from their cemeteries, would yield similar results. Falerii and Capena are two sites that spring to mind in this connection. For the present one can only state the problem and await the results of further excavation.

Another question that must await the result of further work is that of the absolute chronology. This is dependant ultimately on associations with Greek imports; and to the difficulties of interpretation that already have to be taken into account in dealing with material from the coastal cities is added that of a further potential time-lag between these and the cities of the interior. A striking characteristic which the North-west Gate site shares with the cemeteries of Veii is the poverty of actual Greek imports. In the great majority of cases pottery of Greek type proves on examination to be of Italian, and in many cases probably of Etruscan, manufacture; and of the latter there can be very little doubt that much was manufactured locally in the potteries of the Tiber valley, which were certainly active at a very early date, notably in the Falerii and Capena districts, where there are abundant deposits of fine-quality clay. A great deal more work needs to be done before one can say anything in detail about most of these local wares. It is obvious, however, that once a type had passed into local production, it might well remain in use long after it had become obsolete elsewhere, and this factor of possible retardation is one that has to be borne clearly in mind on a site such as Veii. It probably applies, for example, to a great deal of the later bucchero (that bucchero was being manufactured at or near Veii is indicated by the animal figures listed in the appendix below, pp. 71–73); it seems to have applied later to the black-glazed wares of the 2nd and 1st centuries B.C.⁵⁴

What is now needed at Veii, to supplement the abundant material from the cemeteries, is a comparable body of material from the town itself. It is very much to be hoped that this can be achieved before the inroads of cultivation have done irreparable damage to those sites that are still available.

LESLIE MURRAY THREIPLAND.

⁵² Information from Sig.ra Vianello.

⁵³ *PBSR*, xxix, 1961, p. 14.

⁵⁴ *Ibid.*, pp. 56–7.

APPENDIX

SMALL BUCCHERO FIGURES OF RAMS FROM VEII

Three separate pieces of small bucchero figures (fig. 25, A, B, C, pl. XIIa, b, c) were found in 1959 on the surface at Veii, on the northern slopes of the main ridge near the Piazza d'Armi. Although not associated with the excavation, they have seemed worth illustrating, since they

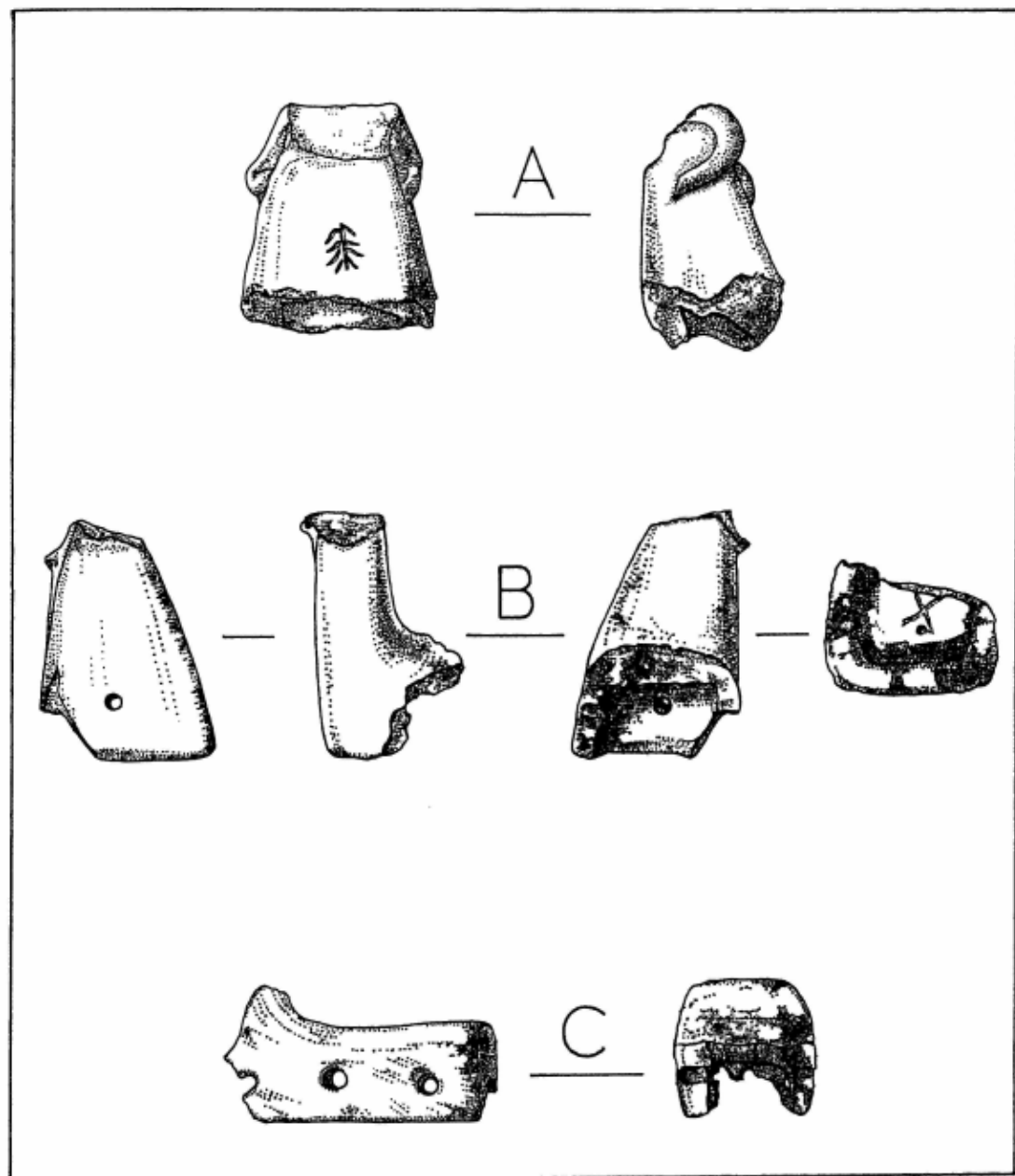


FIG. 25. BUCCHERO RAM FIGURES, SURFACE FINDS FROM VEII. SCALE 1/2

appear to represent a type of object that is almost peculiar to Veii and was presumably manufactured locally. A and B only survive as heads with parts of ram's horns curving forward, whereas in C the head is missing and only the body was found. All are made of a late type of bucchero in which the core of the fabric has not been completely reduced and shows as an ashy-pale colour in contrast to the dark-grey slipped exterior. A is well polished at the back and sides, but the horns and the front face now only show a matt surface. B is well polished on all faces, but on C practically

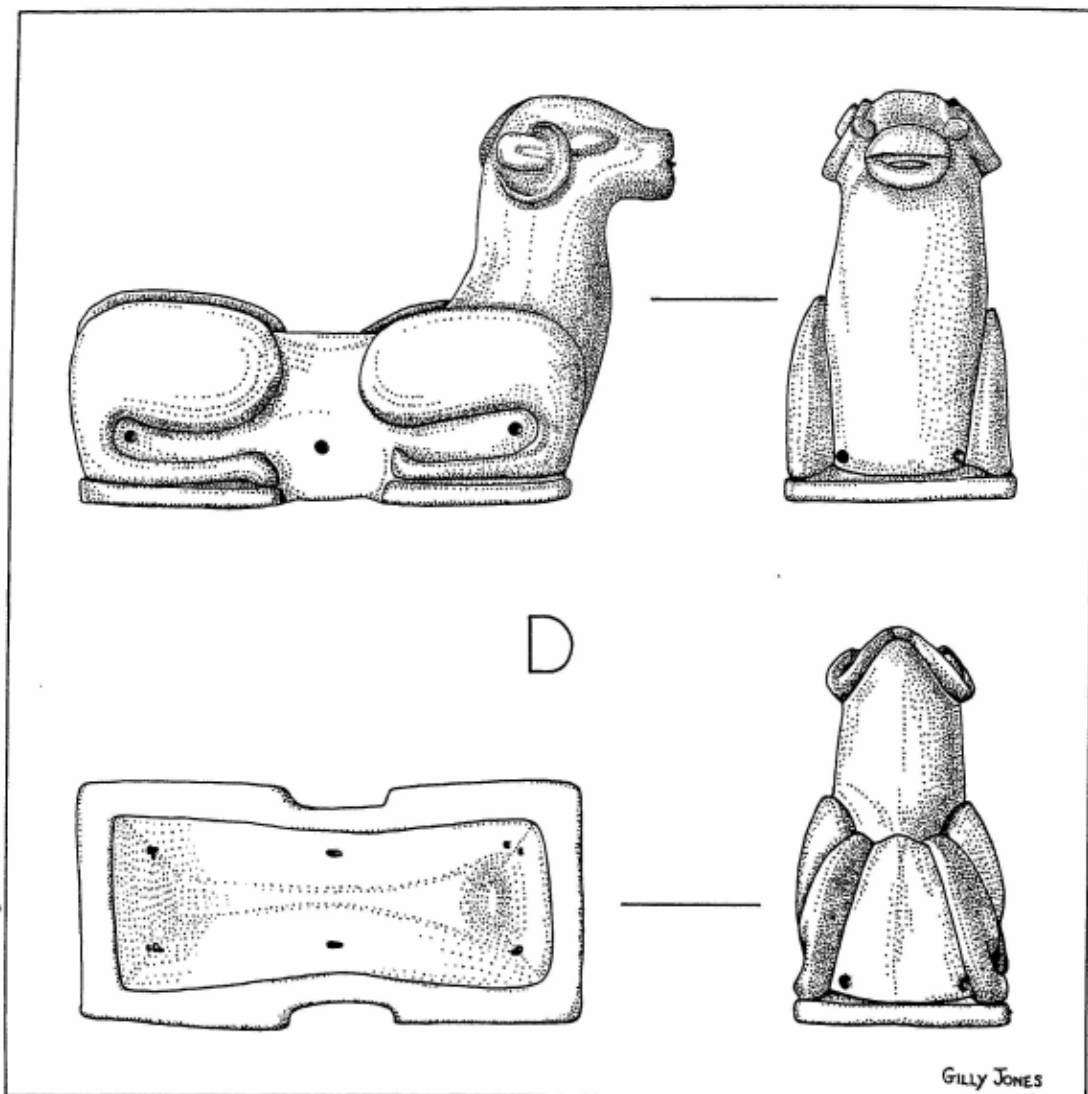


FIG. 26. BUCCHERO RAM FIGURE, FROM VEII. SCALE 1/2

no polish remains, and in one place, on the side of the back, there is cracking and signs perhaps of a fault in firing. The sides show the fine striation of the potting.

These three figures illustrate the characteristics common to the type. There is a coffered interior into which some oblong object, presumably of wood, was fitted, and three holes have been provided along each side and one or two at each end with the evident purpose of fastening the figure to this larger object. Quite how this was done it is not easy to see. The holes often seem

to be too near the top of the recessed interiors for nails or pegs to have secured the object inside, nor is there any substantial trace of the wear that one would expect had nails been used. Until one of these distinctive objects has been found in its original context the question must remain open.

A has a sign scratched on the front face, and B, one on the front part of the interior recess, both made before firing.

A complete example of one of these bucchero ram figures (fig. 26, pl. XIII) also comes from Veii (Villa Giulia) and is here reproduced through the courtesy of Professor Moretti. It is of dark grey-brown bucchero, well-polished externally except on one side, specifically between the shoulders and front legs, the haunches and hind legs, and around the ear and horn. The interior is not polished, nor is it coffered squarely as in A, B and C but is hollowed out inside the neck and body as well. There are the typical three holes along each side, and two at the back and two in the front, although one of these is blind. These holes, in contrast to the other examples, are much narrower in diameter and show definite signs of wear externally. The figure as a whole is completely stylised. The shoulders and haunches are smooth and rounded and rise above the body, the front legs bend back, and the hind legs forward, in classic ovine posture.⁵⁵ The horns are shown curving round the ears and joining in a ridge across the top of the head and the eyes protrude in relief. Where the front of the face has been squared off the mouth is seen slightly open with the tongue showing.

Other examples of these bucchero figures have been found at Veii and Capena: in Stefani's excavations at the Piazza d'Armi at Veii, among votive objects;⁵⁶ by Lanciani at Veii, in the large building which he excavated in 1888-89 a short distance to the north of the Piazza d'Armi, i.e. quite near to the find-spots of fragments A, B and C;⁵⁷ and by Stefani at Capena in the filling of Tomb 130 C.⁵⁸ Of all these and the present figures, the one shown in fig. 26, pl. XIII, is by far the most completely modelled, the others, as far as can be seen, having merely a box-like body and rudimentary horns.

It is difficult to determine how these figures were utilised; they are far too small to be fire-dogs, as Stefani suggests (*alari*), they seem too elaborate for toys (so Lanciani), and they are not merely decorative figurines. They certainly were made to fit on to some wooden projection in a horizontal position where they received comparatively little handling; it is difficult otherwise to account for the lack of wear round the holes. The fact that bucchero is often used as a cheap substitute for bronze, or ivory, suggests that these figures may have been decorative terminal elements on chests or some piece of furniture. A suggestive parallel is offered by the pottery Sarcophagus of the Lions from Cerveteri, now in the Villa Giulia.

Intrinsically interesting as these ram figures are, they have the added importance that they have been found so far only at Veii and Capena. This fact supports the supposition that bucchero was being manufactured locally during this later period.

Acknowledgements.—In the preparation of this paper I have been especially indebted to Mr. J. B. Ward-Perkins, Director of the British School at Rome for his valuable help throughout. Several people also, to whom I am very grateful, have looked at the material and have given advice over a number of points. These have been notably: Prof. E. Gjerstad, Prof. A. D. Trendall, Prof. R. M. Cook, Mr. John Boardman, Mrs. Brenda Redmayne, and Signa A. P. Vianello.

⁵⁵ Cf. a ram figurine in the same posture in Corinthian ware in the Castellani Collection (51981), Room 18, at the Villa Giulia; cf. also a wooden cosmetic box in the shape of a ram (51845)

in Room 15, Villa Giulia.

⁵⁶ *Mon. Ant.* xl, cc. 269-72, fig. 75.

⁵⁷ *N.S.* 1889, figure on p. 63; *PBSR*, xxix, p. 31.

⁵⁸ *Mon. Ant.* xlv, cc. 158-60, fig. 45.

UNDERGROUND DRAINAGEWAYS IN SOUTHERN ETRURIA AND NORTHERN LATIUM

(Plates XIV—XVII, XXX)

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THE River Tiber at Rome flows between the gentle, converging slopes of two extinct volcanoes, the M. Sabatini to the northwest and the complex known as the Alban Hills to the southeast. On the southern flanks of the M. Sabatini lie the Etruscan cities of Veii and Caere (modern Cerveteri) as well as many smaller Etruscan settlements. To the south on the western and southern slopes of the Alban Hills are such ancient towns of northern Latium as Ardea, Lanuvio and Velletri. In these same areas is an extensive development of underground passageways locally known as cuniculi,¹ structures which are the subject of this report.

The cuniculus was widely used for a variety of purposes during classical and pre-classical antiquity in central Italy. Livy reports on cuniculi driven as military devices to gain access to besieged cities. The traditional account of the lowering of the Alban Lake, as reported by Livy, dates from the early 4th century B.C. Excavations in urban centres have demonstrated that the Etruscans and later the Romans used cuniculi for drainage purposes, and also as lateral collectors of underground water in wells.

This report deals with extensive systems of cuniculi found in the Roman Campagna but not directly related to urban or domestic development. There are numerous references to these structures in the archaeological literature but we know

Acknowledgements.—Mr. J. B. Ward-Perkins, Director of the British School at Rome, has encouraged this study from its inception and we acknowledge with pleasure his help in both field and office. Among the several people who have provided field assistance we wish to thank Dr. and Mrs. Rainer Schickele, Mrs. Betty Eastwood and Mr. G. D. B. Jones. Dr. Paolo Ruggiero kindly gave permission to examine cuniculi on the Olgiata estate. During the course of the field studies Judson held grants from the Fulbright Commission and from the Guggenheim Foundation. He presented some of the material in lecture form at the Belgian Universities of Ghent, Louvain and Liege under the sponsorship of the American Educational Foundation in Belgium.

¹ The Latin form, *cuniculus*, -i, is retained throughout, as is its meaning, *underground passage*. The Italian *cunicolo*, -i, has the same meaning.

of no systematic study of them.² On the basis of field observations we have mapped in detail the system of cuniculi which centres on the site of the City of Veii. We have also examined the scattered cuniculi lying farther west towards Cerveteri. South of the Tiber in northern Latium our map of even more widespread cuniculi is based chiefly on aerial photographs with later spot checks in the field. We list also several cuniculi which fall outside the mapped areas, but on which we have data either from aerial photographs or from field observations.

General Distribution

Cuniculi, which we refer to as 'field' cuniculi to distinguish them from cuniculi associated with domestic and urban developments, exist in a number of places in southern Etruria and northern Latium, but to our knowledge they are most abundant in two specific areas. The first of these is in the area immediately around Veii. The second is south of the Tiber in a belt more or less arcuate about the southern and western slopes of the Alban Hills volcanic complex. Figures 1 and 2 show this distribution. Outside these areas cuniculi exist but by no means in the same abundance.

Physical Setting.—Areas of extensive cuniculation are related to the 'tufo' of the volcanic belt of central Italy, an association noted by virtually every author who reports on cuniculi. This belt consists of four coalescent volcanic centres. The southernmost forms the Alban Hills and northwest of the Tiber lie, in succession the Monti Sabatini, Monte Cimino and the Monti di Bolsena.

Topographically the mountains are similar one to another. Each has a central crater ringed by high, steep cliffs and embracing a lake. Smaller craters, most without water, cluster around, or within, the central crater. They may be arranged in a circular pattern as in the Alban Hills, or they may have a linear arrangement as in the Monti Sabatini. In the latter instance the strung-out craters form a natural boundary between the territories of Veii and of Falerii. Away from the high centres the flanks of the volcanoes sweep downward in graceful and ever gentler curves. Today stream valleys carved in the volcanic rock radiate outward in a centrifugal pattern from the volcanic craters. In total aspect, then, each volcano is a large, shield-like structure, the central crater and cliffs forming the centre of the shield while the main portion is incised and decorated by the stream valleys coursing downward from the higher slopes.

The rocks forming the volcanoes are geologically recent in age, probably mostly Pleistocene. They are of two general types. Least important in volume are the basalts formed from the crystallization of flows of lava that have broken forth at the surface. More important are the vast accumulations of volcanic ash, cinders, and bombs—deposits classed under the general name of volcanic ejecta, particles

² For a valuable discussion of cuniculi in general see Plinio Fraccaro, 'Di alcuni antichissimi lavori idraulici di Roma e della Campagna' reprinted from *Bollettino della Società Geografica Italiana*, s. 5, vol. viii, 1919, pp. 186–215, reprinted in his collected *Opuscula* (Pavia, 1957) with four appendices commenting on work published since the original article. About the cuniculi that are the subject of this article, Fraccaro was wrong and Ashby (*The*

Roman Campagna in Classical Times, 1927, pp. 239–40) right. Among the 19th-century publications we have found of most value 'Cuniculus' by R. De La Blanchère in Daremberg and Saglio, *Dictionnaire des Antiquités*, vol. ii, Pt. 2, pp. 1589–1594, 1887, Paris. See also Ward-Perkins, *Papers of the British School at Rome*, xxix, 1961, pp. 47–57, and in *Homages to Albert Grenier*, vol. iii (*Collection Latomus*, vol. lviii, 1962), pp. 1636–1643.

of varying size blown from the volcanic vents to form the bulk of the volcanic mass. Many of these volcanic deposits were reworked along the mountain flanks by large amounts of water to produce extensive mudflows which carried the volcanic material to lower and lower elevations around the margins of the volcanoes. Most of the ejecta (and even the mudflow deposits) are referred to as 'tuff'.³ It is in beds of this tuff that the cuniculi have been constructed. This association between distribution of tuff and of abundantly cuniculated areas can be seen in Figure 1.

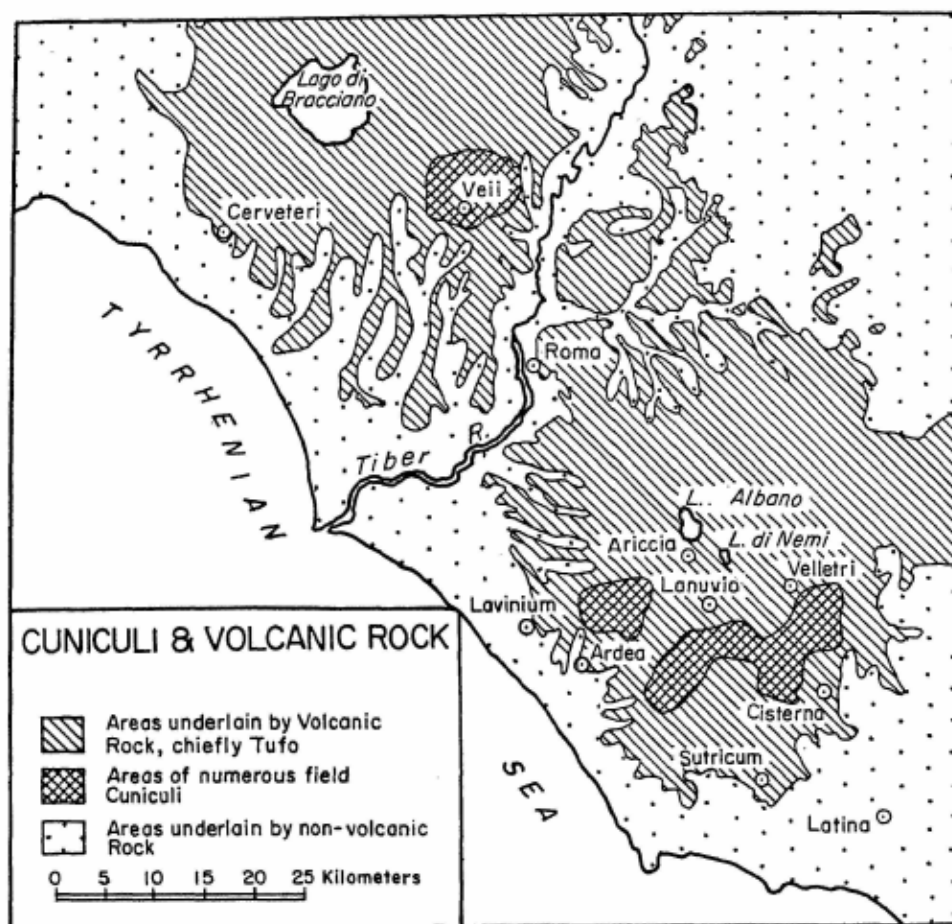


FIG. 1. RELATION OF AREAS CONTAINING LARGE NUMBERS OF FIELD CUNICULI TO AREAS OF VOLCANIC ROCK IN NORTHERN LATIUM AND SOUTHERN ETRURIA

The volcanoes were not created during one great spasm of activity. On the contrary, the construction of the volcanoes was intermittent, with periods of accumulation of volcanic material interspersed with longer periods of quiescence. During

³ Terminology can be confusing. In English usage tuff=volcanic ash; tufa=soft, spongy deposit of limestone, usually laid down in streams and springs. Travertine in both English and Italian

refers to a form of limestone, usually permeable, and usually deposited in fresh water. As such it is akin to the English tufa, but differs in being much more solid.

these periods of non-eruption the material—in so far as it was above sea-level—was subject to the normal weathering processes of the times. Soils and weathered debris developed and mantled these earlier landscapes even as the modern landscape is veneered with present-day products of weathering. Subsequently these old soils were buried by additional volcanic material and thus became a part of the growing volcanic complex. These weathered zones are in most places relatively impermeable to the percolation of water and offer natural barriers to the circulation of ground-water through the otherwise permeable beds of tufo. We feel that the presence of these ancient, buried zones of weathering influence the development of the cuniculi and we will return to this point in later paragraphs.

In addition to the old, now-buried soils we must also mention the modern soils of the area for they, too, have a relation to the cuniculi. The volcanic belt is covered (or was until man's extensive interference) with a sequence of brown earth soils that can be divided into three different types. All three develop from the same parent material (in this case the volcanics) and the differences are caused probably by slight differences in climate and vegetation, which in turn are conditioned by variations in geographic setting. The three soil types are: (1) typical *Braunerden* or Brown earth; (2) Brown Mediterranean Soil of the Mesophytic Forest; and (3) Brown Mediterranean Soil of the Xerophytic Forest.⁴ Figure 2 shows that the area of extensive cuniculation is restricted to the Mediterranean Brown earth of the Mesophytic Forest. This soil differs from the other two in several ways, but most significant to us is that it contains an appreciably greater amount of clay-sized and silt-sized particles than do the other two soils developed on essentially the same types of parent material.⁵ The greater amount of such particles means that this soil becomes hard and compact during the dry season and sticky and impermeable during the wet season. The other two soils, having fewer fine particles, are more friable during the summer and more permeable during the fall and winter rains. We will return also to this point when discussing the functions of the cuniculi.

Description

Area of Veii.—In the Veii area the drainage is southeastward off the flanks of Monti Sabatini. Actually the longer streams of the Veii area originate in or on subsidiary craters of the M. Sabatini—the Sorbo, Baccano and Cesano craters. The streams take their direction as a consequence of the original slope of the volcano. Because the majority of cuniculi follow the valleys the general direction of cuniculi in the Veii area is southeastward, as is apparent from a glance at the map in Plate 1. Within the area covered by the Veii map (Plate XXX) a total distance of 23 kilometres of existing cuniculi has been mapped. In addition we have mapped another three kilometres of cuniculi as originally present but as now collapsed. It is possible that additional cuniculi are present, but certainly those

⁴ The most authoritative information available on the soils of Italy is Fiorenzo Mancini's 'Carta dei Suoli d'Italia', *Agricoltura*, No. 7, July 1960, Roma, and we rely heavily upon this article and its accompanying map.

⁵ In pedologic (soil science) terms the Mediterranean Brown Earth of the Mesophytic Forest develops a textural B-horizon. The Mediterranean Brown Earth of the Xerophytic Forest does not develop a B-horizon. In the typical Brown earth the B-horizon is either feebly developed or lacking.

mapped in Plate 1 represent the great bulk of those extant. It may very well be that collapsed cuniculi are of wider extent than shown on the map.

The cuniculi we have studied have two major components: (1) the nearly horizontal main tunnel, and (2) a series of vertical shafts from the ground surface to the tunnel. Since their construction most of the tunnels have been enlarged by the natural processes of mechanical weathering, caving, and erosion by running water. As a result the present cuniculi are in most places much larger than they

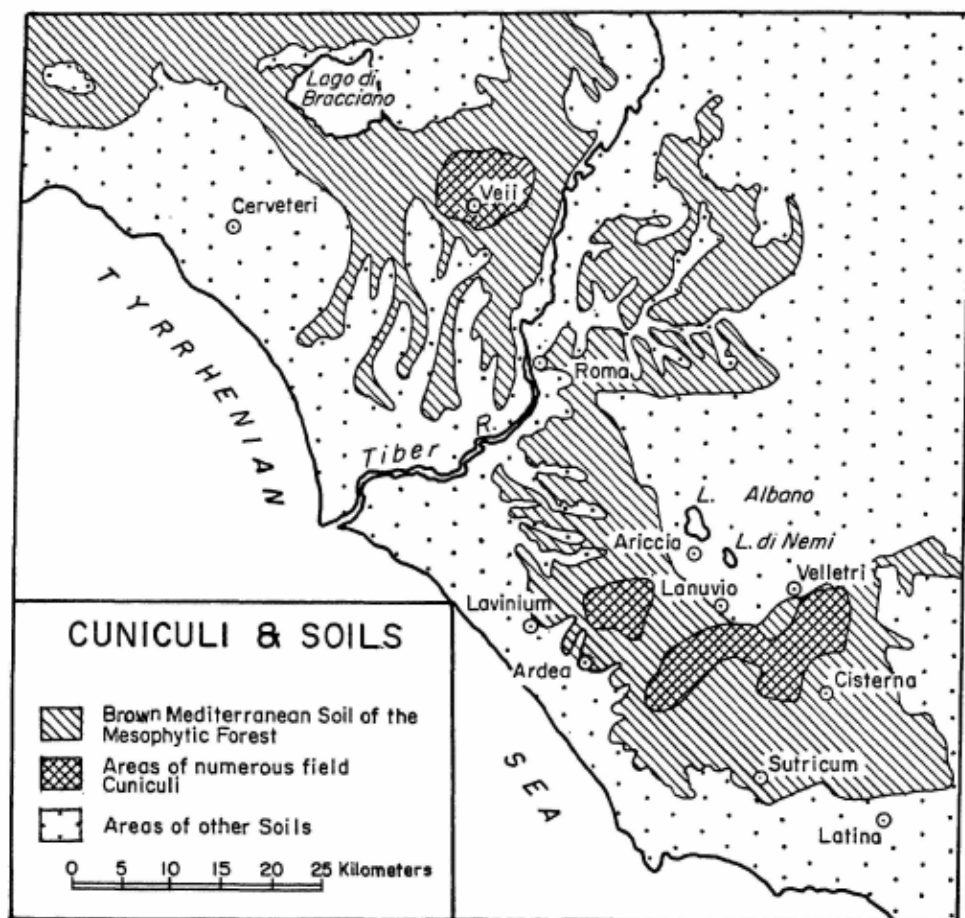


FIG. 2. RELATION OF AREAS CONTAINING LARGE NUMBERS OF FIELD CUNICULI TO AREAS OF BROWN MEDITERRANEAN SOIL OF THE MESOPHYTIC FOREST

were when first built and no longer retain their original shape. In many places segments of cuniculi have collapsed and in some places entire tunnels have fallen in. Where the original shape can be seen the tunnels have fairly small cross-sectional outlines as shown in Figure 3 and Plates XIV, *a* and *b*. Most of them have a width of a little over a half a metre and a height that averages about 1.75 metres. They are thus just large enough to allow the upright passage of a small man.

A few of the larger streams can be shown to have had cuniculi twice this width as in the case of the cuniculus along the eastern side of the Fosso di Pantanucci (27, Plate XXX). Also the Ponte Sodo at Veii (17, Plate XXX) has an incomplete upper gallery that is three metres wide. The road tunnel through the western cliffs of the ridge that carries the Via Flaminia (46, Plate XXX) originally measured 2.20×2.70 metres. (See Figure 3).

The gradients of most cuniculi are approximately equivalent to the slopes of the stream valleys in which they are found. The longest continuous cuniculus (20, Plate XXX) we have mapped has a gradient of 2.6% over its $4\frac{1}{4}$ kilometres

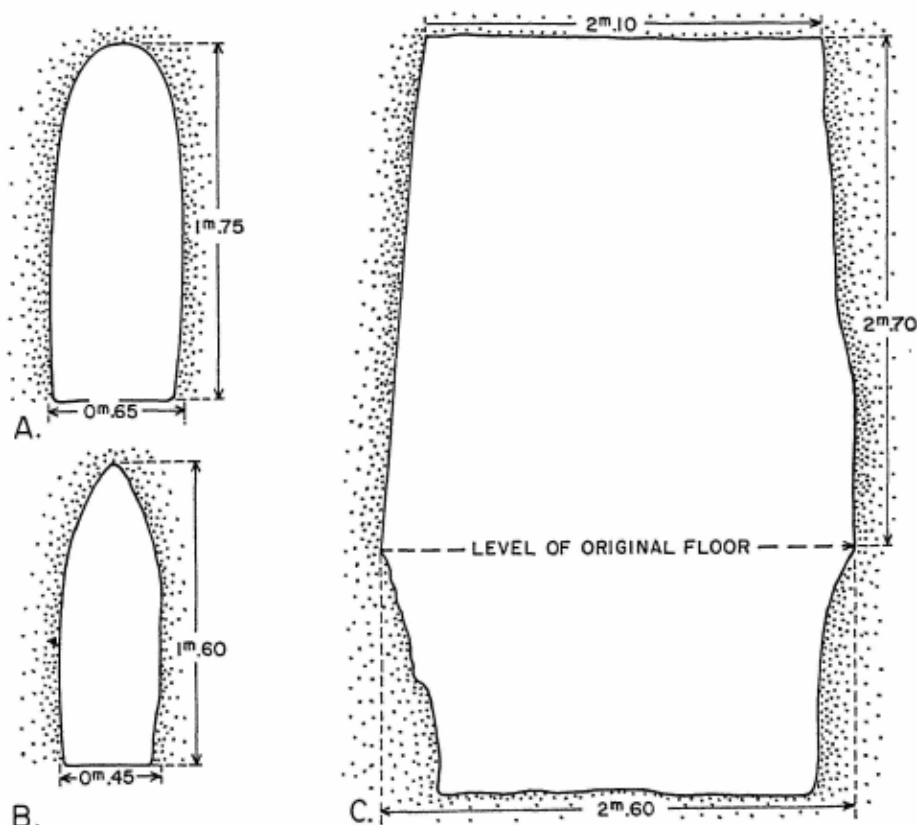


FIG. 3. TRANSVERSE SECTIONS OF CUNICULI

- A. Abandoned cuniculus in the valley of the Fosse degli Olmetti.
- B. Fosse delle Rughe, north of Veii (10, pl. XXX)
- C. Road Tunnel on west side of Flaminian Ridge (46, pl. XXX)

of length. The cuniculus of the Fosso di Cisternoze (22, Plate XXX) has a gradient of 2.3%, that of Fosso di Monte Oliviero, (31, Plate XXX) 1.8% and that of Fosso di Prato Inglese (9, Plate XXX) has a slope of 1.2%. Each of these cuniculi follows a valley. There are some cuniculi which lead from one valley to another and they may have higher gradients if the difference in elevation between

the two valleys is great. Thus the cuniculus into the upper valley of the Fosso del Lavatore (12, Plate XXX) has a gradient of 3.8% and the next between-valley cuniculus to the south (13, Plate XXX) has a gradient of 3%.

The tunnels are straight between vertical shafts and changes of direction occur only at the point of a vertical shaft. Where the original surface of the tunnel walls is still preserved pick marks are visible (Plate XV, *a*). The use of plaster, brick or stone work is not present except in demonstrably Roman constructions, an example of which is described among the cuniculi near Cerveteri.

Intimately related to the tunnels are the vertical shafts connecting the tunnels to the surface. In the Veii area these shafts are spaced at a distance which ranges between 28 and 36 metres but is generally between 33 and 34 metres (Plate XVI, *a*). Less commonly the spacing is half this distance.

In most places where the original shape of the shaft survives it is rectangular (Plate XV, *b*). Its long dimension varies between 1.20 and 1.60 metres and is usually (but not always) parallel to the direction of the tunnel beneath. The width ranges between 55 and 75 centimetres. Midway along the longer walls are matching niches about half a metre apart and ranged vertically one above another. We have seen only one example of a circular shaft. This, located along an unnamed valley (45, Plate XXX) at grid location 914578, had a diameter of one metre and matching niches similar to those of the rectangular shafts. The depth of the shaft varies with the depth of the tunnel. It may be two or three metres, but where a cuniculus passes beneath a ridge may be 30 metres. The majority are between 4 and 6 metres.

In addition to the tunnels and shafts one finds in some places evidence of cuniculi leading into the tunnel from the sides. When they enter from the valley side they descend gently from the surface of the valley bottom to the main cuniculus tunnel. They have the same size and shape as the main cuniculus into which they enter. In addition smaller drains in places enter into the cuniculi from the hill side. Some of these are lined with concrete or Roman brick and most are associated with demonstrably Roman villa sites.

We have already stated that most of the cuniculi run parallel to the valleys of the area. When parallel to the valley the cuniculus lies off the central axis of the valley and toward one valley wall or the other. Most of the cuniculi lie along the right side of the valley, although there are a number of examples of cuniculi located on the left, as for instance that near Torre di Pietra Pertusa (45, Plate XXX) and that along the Fosso di Pantanicci (27, Plate XXX).⁶ The tunnel lies somewhat below the valley bottom. In general the cuniculi are confined to the smaller and shallower valleys. The larger valleys are not cuniculated unless over a short distance and through a bedrock spur so as to cut off a bend in the stream.

Area of Caere.—Ancient Cerveteri and environs provide—to our knowledge—only seven examples of cuniculi. Their distribution is shown in Figure 4. North of the monumental necropolis the Ponte Vivo cuts off a spur of tufo in the valley of the Fosso Marmo and carries an ancient road, presumably Etruscan (1 in Figure 4). To the east toward Veii is the Ponte Coperto which today serves as a bridge even

⁶ 'Left' and 'right' refer to position in relation to the valley bottom as the observer faces down stream.

as it did in antiquity (3 in Figure 4). Still further east a cuniculus near the Casale S. Alberto (map grid 685552) diverts a stream from a small valley to make room for an ancient pre-Roman road (5, Figure 4). One of the two cuniculi south of Ponte Coperto parallels a valley axis, and the other drains from one valley into another (2 and 4, Figure 4). They are thus similar to the majority of the cuniculi found in the Veii area. Just west of Fontanile delle Pertucce is still another cuniculus (6, Figure 4) parallel to a small valley.⁷

At the Fontanile delle Pertucce itself a cuniculus about 75 metres long runs down the centre of a small valley flanked by tufo cliffs into which have been cut Roman tombs (7, Figure 4). This cuniculus is different from any we have examined and deserves description. We were able to examine only its northern end in May of 1962. Here it is 1.85 metres wide and 2.60 high at its entrance. Its roof is arched and lined with concrete that was poured against retaining planks the imprints of which are still visible. Planks were 20 to 30 centimetres wide by 2.25

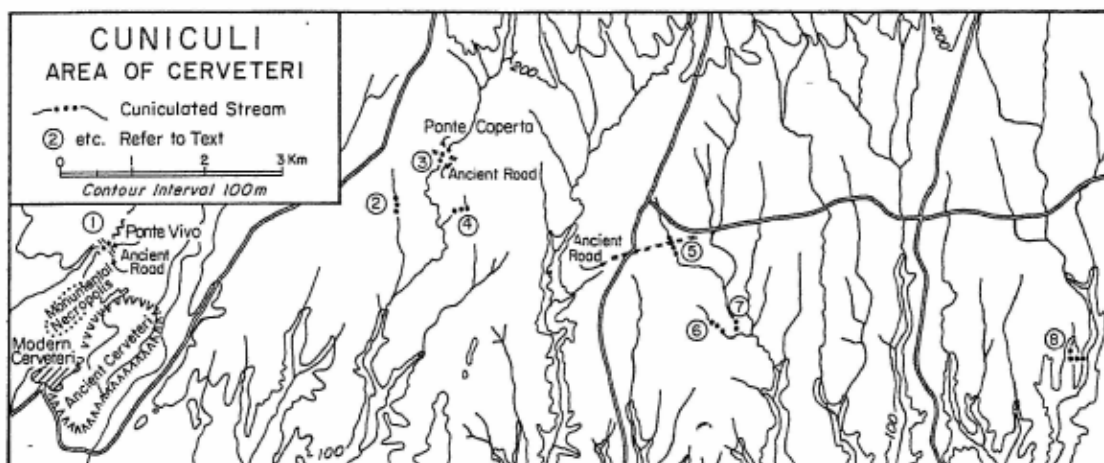


FIG. 4

metres long. The walls beneath the arch were lined with *opus reticulatum*, the blocks of which measured 9.5 × 9.5 centimetres.

The cuniculus contains vertical shafts now covered at the surface. The two we were able to measure were 65 centimetres square and 13.10 metres from centre to centre. One was lined with tufo blocks 10 × 25 centimetres and the other was finished in *opus reticulatum*.

The southern end, examined by Kahane and Ward-Perkins in April 1960, is similar in size and *opus reticulatum* walls sit on two to four courses of brick and are capped by blocks of tufo. From these latter springs the concrete arch, which exhibits the imprint of the planking used to build the form. Reticulate gives way to a brick pier where the cuniculus changes direction. Six metres from the southern entrance a tile-lined cuniculus joins from the west. It has a peaked tent-shaped

⁷ This site is known to have been occupied from pre-Roman through Imperial time. See Ashby, *op. cit.*, p. 235.

roof section. In the main cuniculus *opus reticulatum* gives way to tile one metre from the confluent.

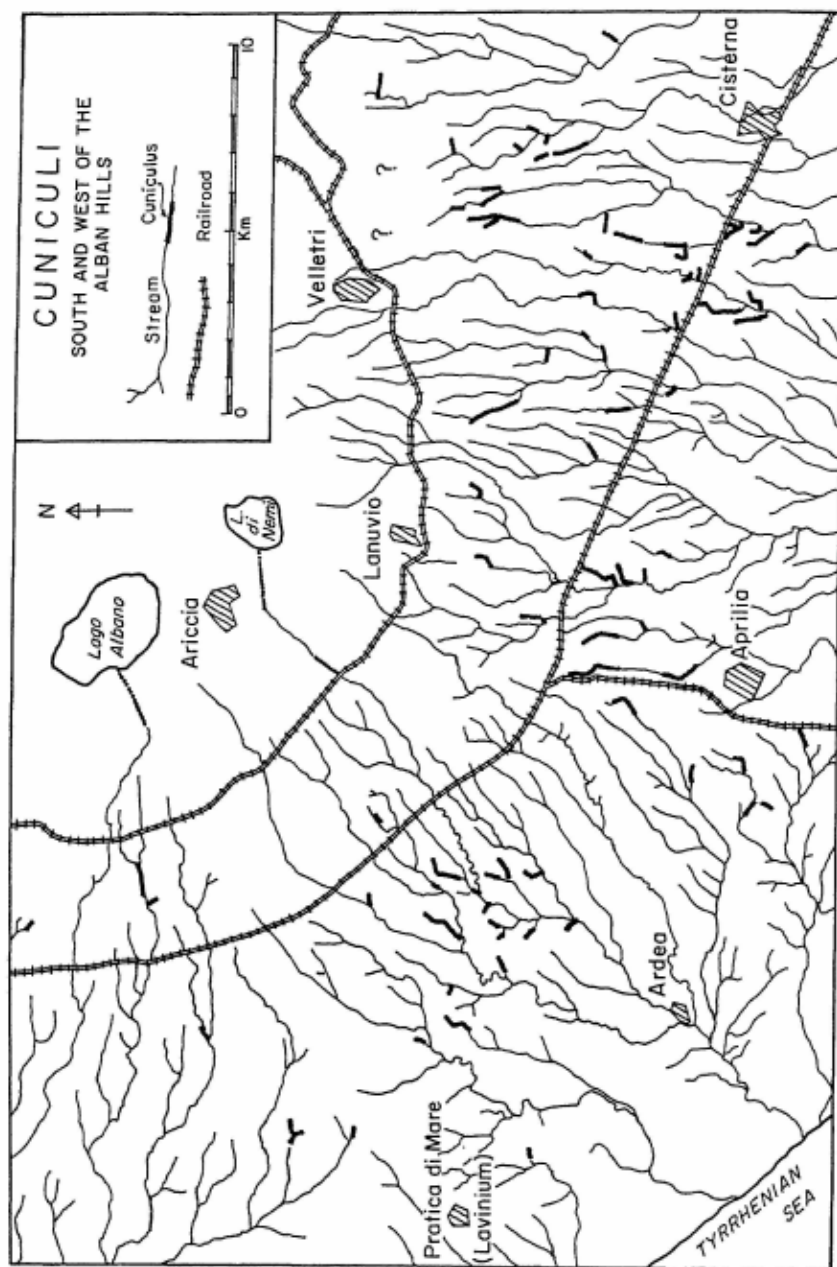


FIG. 5

This obviously Roman structure differs in size, interior treatment, and general location from the other cuniculi we have seen.

Northern Latium.—The map in Figure 5 shows the distribution of existing cuniculi on the southern and western flanks of the Alban Hills volcanic centre. We indicate a total of about 45 kilometres of cuniculi identified largely on the basis of aerial photographs taken in World War II. We have run a field traverse from Velletri past Aprilia and through the area north of Ardea. We have by no means visited each of the cuniculi shown on the map but on the basis of our field traverse and our previous experience in the Veii area we believe that the picture presented in Figure 5 is a conservative one. It is probable that a thorough field check would add another 10 kilometres of existing cuniculi to the map and 5 or 6 kilometres of now collapsed cuniculi.

The cuniculi in this area are essentially identical with those of the Veii area (Plates XVI, *b*, XVII). Those parallel to valleys are offset from the main valley axis and carry the stream underground. Some carry a stream beneath a ridge

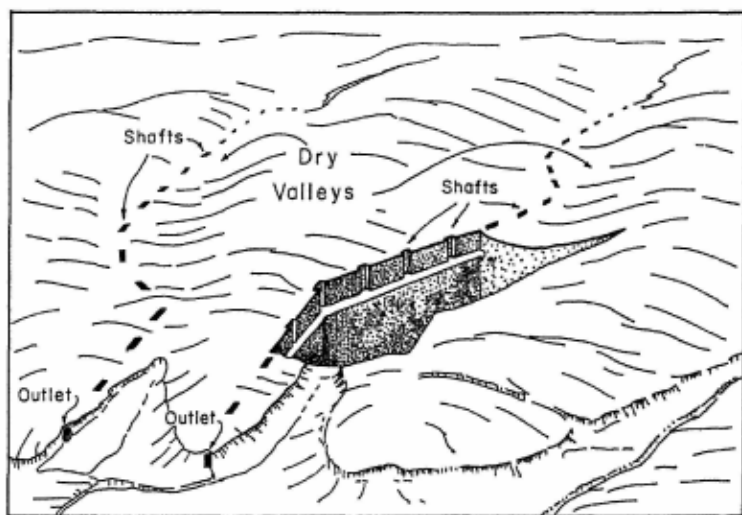


FIG. 6. SCHEMATIC VIEW OF FIELD CUNICULI PARALLEL TO THE AXES OF VALLEYS

from one valley to another. We cannot however, demonstrate that any were designed as road bridges, or as road tunnels or that any are spur cut-offs similar to Veii's Ponte Sodo.

There are three examples of emissaries in the area, a type of cuniculus not represented at Veii or Caere. One is the well-known emissary of Lago Albano. Another leads from Lago di Nemi into the basin of Ariccia which once held a lake by the same name.⁸ Lago d'Ariccia is in turn drained by another emissary and the water eventually drains past Ardea to the sea. We have not examined the emissaries ourselves but De La Blanchère⁹ reports that the Albano emissary has a section two metres high and 1.20 metres wide, that the Nemi emissary is

⁸ The ancient Emissary was re-used in 1928-29 to lower the level of Lake Nemi during the recovery of sunken Roman ships. *Itinerari dei Musei e Monumenti d'Italia* No. 72, Libreria dello Stato, and G.

Ucelli, *Le Navi di Nemi*, Libreria dello Stato, 1950, pp. 41-56.

⁹ R. De La Blanchère, 'Emissario' in Daremberg and Saglio, *op. cit.*, vol. 2, Pt. 1, p. 599-600.

about the same height but is generally 75 centimetres wide, and that the Ariccia emissary is two metres high and between 45 and 70 centimetres wide. A fourth example, the cuniculus that drained a shallow lake or marsh on the south side of Capena,¹⁰ should perhaps be considered rather as a drainage channel than as an emissary, since it follows the line of the valley, reactivating a natural line of drainage which had in some way become blocked.

Types of cuniculi.—On the basis of the observations recorded on the preceding pages the field cuniculus may:

1. lead a stream underground and be parallel to the valley axis (Figure 6);
2. lead a stream from one valley to another (Figure 7);
3. cut off a bend in a stream by diverting it through a bedrock spur;
4. lower a lake level or completely drain a lake basin.

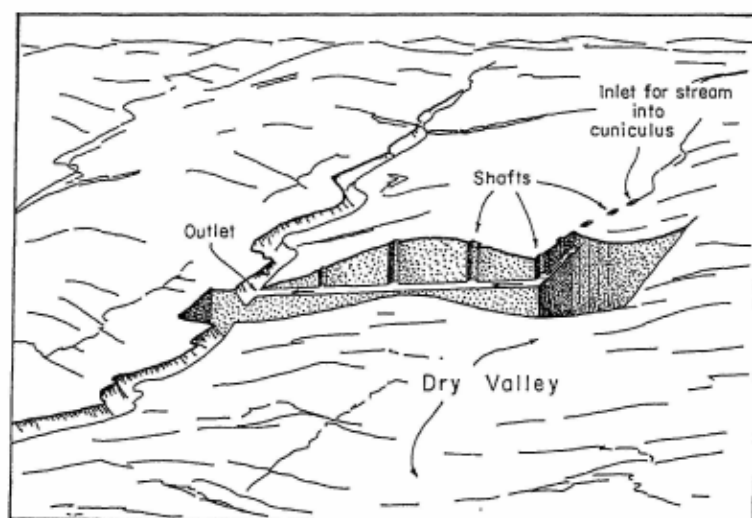


FIG. 7. SCHEMATIC VIEW OF FIELD CUNICULUS LEADING FROM ONE VALLEY TO ANOTHER

Of these, those of Type 1 account for the great bulk of the cuniculi we have seen. Type 2, those that run between valleys, are more common in the Veii area than in northern Latium and can be seen in the former area along the Fosso di Feminamorta (6, Plate XXX), Fosso di Pisciacavallo (8, Plate XXX), at two places along the Fosso del Lavatore (12, 13, Plate XXX), at La Villa (25, Plate XXX) and at the end of the Cunicolo di Prato Inglese (9, Plate XXX). The most impressive of this type is that which leads from Torrente Valchetta to the Fosso Piordo just outside the northwest limits of Veii (15, Plate XXX). The Ponte Sodo on the northern side of Veii (17, Plate XXX) and the unnamed cuniculus southwest of the city (16, Plate XXX) are examples of cut-off valley spurs. Lake-draining cuniculi (generally called emissaries) are seen in the Alban Hills at Lago Albano, Lago di Nemi and Val d'Ariccia (Figure 5).

¹⁰ Jones, *PBSR*, xxx, 1962, pp. 143-4, fig. 9, pl. XXVII.

Methods of Construction

The tufo in which the cuniculi and their related shafts are driven is easily excavated. At the same time it is coherent enough to maintain vertical faces and arches over long periods of time. Construction therefore was not complicated by the need for shoring or other artificial reinforcement.

The tunnel itself was driven in segments from the bottoms of the vertical shafts. The direction of pickmarks on the walls of tufo shows that the tunnel was pushed in opposite directions from the base of a shaft and proceeded toward tunnel segments being driven from adjacent shafts. In most tunnels there was room enough for only one man at the working face. Debris was moved back to the base of the shaft and upward to the surface. The spoil was taken to the surface presumably in baskets pulled by ropes or passed by hand. In the mines of the Colline Metallifere the lips of some shafts show notches as if worn by ropes.¹¹ This suggests that material was there pulled up without benefit of windlass or pulley. We cannot demonstrate the presence or absence of such rope scars in the shafts we have seen.

At the present day a few of the vertical shafts are capped over with large slabs of cut tufo. We think the coverings we have seen are much later than the construction of the shaft because there is evidence of weathering in the shaft. We think that this weathering pre-dates the covering when the shafts were open to the air. This does not preclude the possibility that originally the shafts were covered, but our evidence neither confirms nor denies it. Certainly today most shafts are without covers.

The shafts have a series of matching notches down the centre of the longer sides. These are about 50 centimetres apart. They could have been used as toe holds for steadying a person while going up or down the shaft by means of a rope. More probably they were sockets for rungs wedged into place to form a ladder. If this were done, then the ladder would divide the shaft into two halves corresponding to the two segments of tunnel being driven from the base of the shaft. Whether the shaft was used for access into the tunnel after its construction we cannot say. Some have suggested that they would be useful for maintenance of the cuniculus after construction. They would have been, indeed, if the structures needed maintenance. They seem to have been functioning, however, for hundreds of years without any attention, which suggests that maintenance was not a problem.

In the case of the cuniculi parallel to the valley axis lateral cuniculi were sometimes driven from the main cuniculus at the base of a shaft and inclined upward to the valley bottom.

No evidence has been found of the means of lighting during construction. We found no holes or niches along the walls that might have held lamps.

The marks on the cuniculus walls indicate the use of a sharp pointed instrument. One exception to this are the marks in an upper and unused tunnel above the cuniculus in the Fosso degli Olmetti. Here the instrument had a blade about 1.5 centimetres wide.

The arcuate pattern described by the pick marks suggests that the instrument was swung and therefore hafted rather than driven as is a chisel.

¹¹ Oliver Davies, *Roman Mines in Europe*, Oxford, 1935, p. 31.

Surveying must have been done primarily at ground level. All changes in direction of a cuniculus take place at a shaft, which indicates that the course of the cuniculus was laid out by selecting spots for the vertical shafts. The points at which the shafts were located did not always define a constantly sloping line. Yet it seems probable that the tunnel level was determined from the surface points. The manner in which this was done can only be surmised.

How accurate was the tunnelling between shafts? Where enough of the original passage remains it can be shown that the two approaching tunnel segments did not always meet precisely. The junction was fairly good however, and seldom was the error at the point of juncture more than a half metre either vertically or horizontally. (See Plate XIV, *b*). Usually the error was a matter of a few centimetres and in some place the only indication of the junction is the reversal of pick marks as one proceeds from one tunnel segment to another. Occasionally there occurs what appears to be a gross error. One such example is a dry cuniculus some 60 metres in length which exists in the Fosso degli Olmetti. This is parallel to the active cuniculus but at a height of some two metres above it. It dead-ends in either direction (Plate XIV, *a*). An inscription from Saldæ in Roman Africa (*ILS*, 5795) reminds us that even Roman engineers were not immune from such error. On the whole one is struck by the accuracy of the surveying involved.

This is well demonstrated in the cuniculus on an unnamed tributary of the Fosso del Lavatore at 841588 (13, Plate XXX). Mr. G. D. B. Jones, who kindly examined this example on our behalf, reports that, although about 200 m. long, it is unique in being constructed without the aid of vertical shafts. This considerable technical feat controlled the character of the tunnel, whose dimensions (1.05 m. high and 0.65 m. wide) are by far the smallest of all the cuniculi here described. This represents the minimum space in which a man can wield a small pick in a crouching position. In the absence of vertical construction shafts two galleries were driven independently from either side of the ridge. Where they met under the ridge, the two shafts were only *c.* 0.90 m. out of alignment, which represents a lateral error of less than one half per cent. Considering the technical difficulties involved, this is a remarkable feat. The vertical error was greater. Although the upstream gallery would in any case have been cut a higher level than the downstream section, the actual difference in height, 2.80 m., was probably greater than planned and created a waterfall at the junction of the two shafts. As a result, the flow of water has so eroded the end of the upper shaft that there is today a cave-like chamber under the ridge where the two galleries meet.

Tunnels are generally, but not always, driven through beds of lithic tufo. One finds also that the cuniculi in many places follow a single bed of tufo at least over short distances of up to a 100 metres or so. This is possible because the tufo beds are in most places nearly horizontal or have a slight initial inclination away from the central volcanic cone. Over long distances, however, the tunnels cross slowly from one tufo bed to another. In some places where tufo beds have high local dips (sometimes up to 20°) the crossing of the tunnel is obviously abrupt. As a general rule, however, it would seem reasonable to surmise that tunnelling was in part guided by the tufo beds.

Because the great majority of cuniculi carry water the problem of water, particularly ground water, during their construction had to be contended with. It is probable that most construction was done during the dry season when water table and streams both were low and the difficulties would be at a minimum.

Age of the Cuniculi

Dating the cuniculi is difficult for they serve different purposes, are geographically widespread, and usually lack significant association with artifacts or structures of known age. In our opening paragraphs we noted that cuniculi are known to have been constructed in the area from the beginning of the fourth century B.C. down through the Roman Empire. We could note here that the emissary at Lago di Vico appears to be late medieval in age and that the emissary of Lago di Fucino, was first completed in A.D. 52 and the lake itself last lowered in the 19th century. In any event, it is clear that the use of cuniculi spans over two millenia in central Italy. Our question really centres on the date of construction of the great concentration of cuniculi in the countryside around Veii and in northern Latium. Let us first consider those in the Veii area.

Veii.—A map dated 1547 and showing the Campagna Romana during the time of Pope Paul III pictures diversion of surface water into the underground at Ponte Sodo, Veii, in the Fosso degli Olmetti between Veii and Formello, and in the upper reaches of the Fosso della Crescenza.¹² This alone would be sufficient to show that the system which we have mapped was extant by that time. But there is nothing to indicate that the social fabric of that time or of any time since the Roman Empire was strong enough to undertake so extensive an engineering task. We arrive by default at a Roman or earlier date for the construction of the cuniculi.

To us the most persuasive evidence for dating the cuniculi in this area is their geographic association with Veii. They are obviously related to the site of this city. The question is whether they are related to the Roman or to the Etruscan use of the site. Our thinking leads us to the conclusion that they are related to the Etruscan occupation. The cuniculi were developed chiefly for agricultural purposes as we shall see later, and they are so extensive that they obviously seem related to Veii only when this city was a flourishing and powerful political entity. Veii continued to be inhabited after its surrender to the Romans in 396 B.C. and Ward-Perkins has marshalled a summary of the evidence to show that this occupation was very probably continuous, or nearly so, from Republican time on through that of the early Empire.¹³ Still, Veii was never as important after its fall to the troops of Roman general and dictator, Marcus Furius Camillus, as it was during Etruscan times. To us the cuniculi in the Veii area represent an engineering project that could be accomplished only by a strong viable community such as existed under Etruscan sway, when comparable cuniculi were certainly being cut within the city at least as early as the fifth century B.C. This puts the date of the cuniculi as pre-fourth century B.C. at the latest.

There is an association between some Etruscan roads and some of the cuniculi in the Veii area, but the relative ages of roads and cuniculi are difficult to establish.

¹² Thomas Ashby, *Mappe della Campagna Romana del 1547* (Eufrosino della Volpaia) Rome, 1914.

¹³ Ward-Perkins, *op. cit.*, 1961.

The road may be younger than, older than or the same age as an associated cuniculus and it is usually impossible to decide among these possibilities.

One's intuition is that the cuniculus would make an excellent way in which to bridge a road across a stream. In truth it is. The difficulty with the intuition is that the Etruscans did not necessarily use the cuniculus to bridge a stream. There are numerous instances in the Veii area in which the roads radiating from Veii just avoid cuniculated sections of valleys and cross the streams either by ford or bridge. Many of the roads cross streams at points that today represent the most convenient spots for fords, or offer firm support on bedrock for bridge abutments.

One road offers a marked exception. Branching from the Etruscan road which leads from Veii to Capena another Etruscan road leads from a point just east of the Fosso di Pantanucci, runs due east and crosses through the Flaminian ridge and heads for the Tiber. This road after leaving the Veii-Capena road took advantage of at least four and probably five valley cuniculi before reaching the Flaminian ridge (31, 32, 40, 41, 45, Plate XXX). There two cuniculi serve as tunnels, one cutting straight through the ridge and the other through the tufo cliffs on the west side of the Flaminian ridge (46, 47, Plate XXX). What can we deduce from these road-cuniculus relations?

First, the Tiber road is judged to be a late military road built during the final throes of the struggle between Veii and Rome.¹⁴ The road tunnels are obviously the age of the road and are thus Etruscan and pre-396 B.C. in age. Second, the cuniculi crossed by this road appear to be part of the general pattern of the area and meant originally, as were the others, for field drainage rather than as road bridges. We suggest that the cuniculi were already in place when the road was built and hence that they are older than the road and presumably were built prior to 396 B.C.

Elsewhere in the Veii area the Ponte Coperto (7, Plate XXX) may have been constructed to carry the Etruscan road which leads from Veii toward Cesano. If so it is the age of the road.

Toward Caere two cuniculi seem clearly to have been built as bridges for an Etruscan Road, as was the Ponte Vivo at Caere itself.

Ward-Perkins reasons that the Ponte Sodo at Veii was constructed before the heavy 5th century B.C. fortifications were built. He further adduces circumstantial evidence that the cuniculus leading between the Valchetta and the Piordo was at least as old as the Etruscan road leading from Veii toward Caere.

We have cited and described the early Imperial cuniculus at Fontanile delle Pertucce. We have mentioned that some small drains are associated with Roman villas. Finally the Arco del Pino (18, Plate XXX) which may have originally been Etruscan has a vertical shaft lined with brick, ostensibly Roman. Aside from these three examples we have no evidence pointing to an age later than Etruscan for the cuniculi of Veii.

Northern Latium.—We have even less evidence for the age of the cuniculi mapped in Northern Latium than we have for those in the Veii area. They are not directly associated with any urban centre as are those at Veii. They lie between Velletri,

¹⁴ The road patterns of the Veii area will be discussed in a future report in this series. The gates and roads of the City of Veii itself are reported by Ward-Perkins, *op. cit.*

Lanuvio and Ariccia on the north and Lavinium, Ardea and Satricum on the south. We have no evidence for or against assigning the cuniculated fields to the territories of these towns. We do know that cuniculi were constructed in ancient Ardea and that one of them has an *ante quem* date of the second century B.C. and a *post quem* date of 'Iron Age'.¹⁵ Galieti speaks of cuniculi to drain the soil near Lanuvio but offers little on their age.¹⁶

We know of no tradition from the Roman writers or later that sheds any light on the matter, except for the early Republican draining of the Lago Albano reported by Livy. We know of no significant relationships between the cuniculi and the Roman road system of the area, and we do not even know the pattern of the pre-Roman communication network.

We do know that there was some Etruscan association with the area but to what extent still remains an unadjudicated question. Banti feels that the influence was weak and did not persist beyond the 6th century.¹⁷ Others, notably Pallottino and also Bloch, suggest that Etruscan cultural, if not political, influence was strong up to the loss of Rome as an Etruscan satellite.¹⁸ The architectural terracottas, for example, show that the same patterns, and often the same actual moulds, were being used in such widely separated places as Veii, Praeneste, Rome and Velletri.¹⁹

Although we do not yet know who made these cuniculi or when, we wish to emphasize that in general function and plan they appear to duplicate the larger part of the Veii system. Furthermore, in details of construction they are the same as those at Veii.

Functions of the Cuniculi

The cuniculus was built during antiquity for a number of different reasons and we list some of them below:

Drainage

1. Control a lake level, or lower it
2. Completely drain a lake
3. Land drainage
4. Domestic and urban drainage

Water Collection

1. Lateral collection shafts associated with wells
2. Aqueducts for urban or domestic water supply (collection and distribution)
3. Irrigation (collection and distribution)
4. Water power

Others

1. Military device
2. Road bridge
3. Road tunnel
4. Mining

¹⁵ A. Andren, "Scavo sull'acropoli di Ardea", in *Opuscula Romana*, Swedish Institute, Rome, 1954.

¹⁶ Galieti, 'Il castello di Civita Lavinia', *Bull. Comm. Arch. Com.*, lxi, 1933, p. 159.

¹⁷ Luisa Banti, *Il Mondo degli Etruschi*, Primata, Rome, 1960, p. 15.

¹⁸ M. Pallottino, *The Etruscans*, Penguin Books, 1955. R. Bloch, *The Etruscans*, Thames and Hudson, 1961.

¹⁹ Maria Santangelo, *Musei e Monumenti Etruschi*, Novara, 1960, p. 9.

The cuniculi that we have mapped illustrate more than one of these uses and we have already discussed some of them, namely lake drainage, road bridges and road tunnels. But cuniculi with these functions constitute only a small proportion of the cuniculi we have mapped. We feel that the great majority were designed as an agricultural installation.

Land Drainage.—The pattern of cuniculus distribution near Veii and in northern Latium convinces us that most of the cuniculi were designed to remove water from the surface, a function they still perform. This function has been previously suggested by others particularly by Ashby and Ward-Perkins.²⁰ In the past discussion of the features has been hampered by the lack of extensive field mapping and ignorance of certain field relationships. We feel that the maps and descriptions presented in this report allow a rational explanation of the field cuniculi and eliminate their explanation as water supply installations, a function well-discussed by Fraccaro.²¹

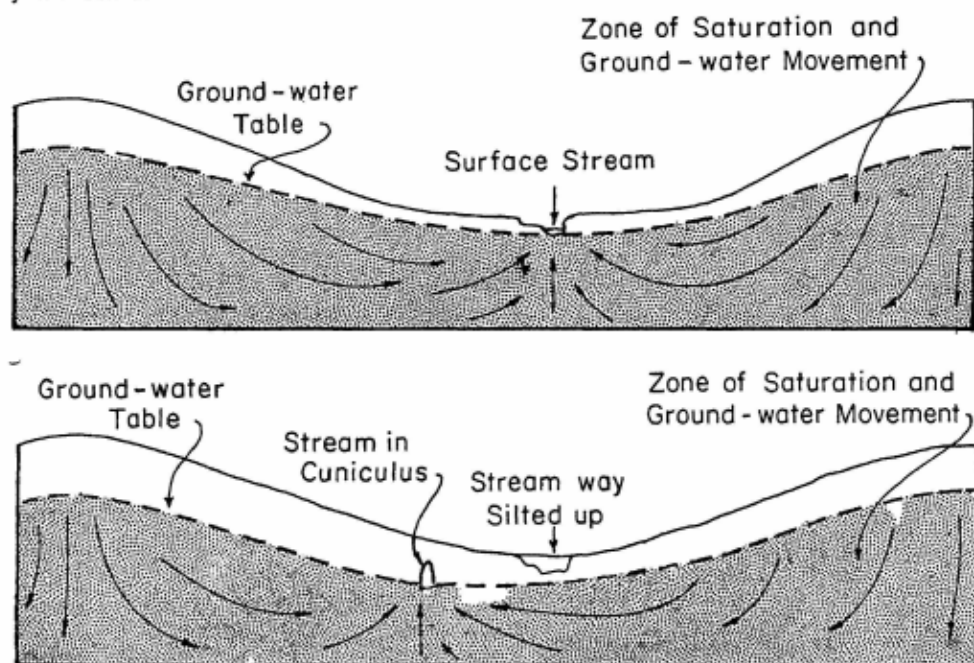


FIG. 8. CROSS-SECTIONAL DIAGRAMS TO SHOW POSTULATED LOWERING OF THE GROUND WATER TABLE BY INSTALLATION OF A CUNICULUS. Arrows in saturated zones indicate ideal circulation of ground water through a homogeneously permeable medium

As drainage structures the cuniculi worked, and in most instances still do, in the following fashion:

1. A cuniculus leading from one valley to an adjacent valley effectively carries off water from that part of the main valley upstream from the diversion. As a result the section immediately downvalley is robbed of its stream and exists as a dry valley without a stream.

²⁰ Ashby, *op. cit.*, and Ward-Perkins, *op. cit.*

²¹ Fraccaro, *op. cit.*

2. A cuniculus parallel to a valley operates to drain the valley in two ways:
 - a. Some water is led directly from the valley bottom into the cuniculus either through lateral drains in the valley bottom or through the upstream head of the cuniculus, which usually begins near the centre of the valley before diverging to one side of the valley.
 - b. Groundwater seepage into the tufaceous bedrock tends to lower the groundwater table in the valley and helps to reduce or eliminate surface flow. (See Figure 8).

We feel that the land so cuniculated was originally too wet for effective agricultural use, and artificial drainage was undertaken. The explanation for the poor drainage of the land in an area of tufo—generally a well-drained rock type—lies in the nature of the soils both at the surface and buried beneath it. We have already pointed out that interspersed among the layers of tufaceous accumulations are ancient, buried soils which formed during periods of volcanic quiescence and which today serve as impermeable zones blocking the free circulation of groundwater. Furthermore we have illustrated (Figure 2) the coincidence between the areal extent of heavily cuniculated country and the occurrence of the poorly drained Brown Mediterranean Soil of the Mesophytic Forest.

Today one finds buried soils cropping out at the surface in many places. They are exposed also in the artificial cuts of the cuniculi themselves. The original soil cover is almost completely destroyed. We have observed a brown clay-rich soil in fortuitous exposures in the valley bottoms. And we have found similar material in augur holes in valley bottoms. This we identify with the B horizon of a soil. One finds reworked bits of this same soil preserved on hill tops and along hill sides during excavation of Villanovan and early Etruscan sites. Thus the burial trenches of the cemetery of Quattro Fontanile at Veii, excavated by the British School at Rome beginning in 1960, preserve some of what we take as original soil. Clods of heavy, brown, clayey soil form part of the fill in the graves. Erosion, however, has stripped the area down to bedrock and no soil is preserved except deep within the graves themselves.

Not only does the pattern of cuniculi indicate that they are designed to get rid of water but this same pattern, as well as field observations, indicates that there is little likelihood that the cuniculi could have been used for irrigation or for collection of water. We have found no works or structures at the outlets of cuniculi, much less those that could be associated with water storage or with water distribution. As far as irrigation is concerned the cuniculi end in narrow segments of the valleys where there is a minimum of arable land. Furthermore, in this respect it must be remembered that to be of use in the wet-winter, dry-summer climate of the Mediterranean the winter water must be stored for the summer use. The cuniculi carry water when it is not really needed for plant growth, and run low or dry up when water would be most useful.

Roads.—We have discussed the use of the cuniculus in relation to road use and pointed out that it is not always easy to prove that a cuniculus was built primarily for road use. It is also difficult to prove that a cuniculus designed and used for

one purpose was later used as a road cuniculus. Despite this we feel that in a number of instances the cuniculi were used by roads.

Water Power.—The cross-ridge cuniculus leading from the Torrente Valchetta under the northwest boundary of Veii to the Fosso Piordo has been discussed by Ward-Perkins.²² This cuniculus takes water from the larger, more permanent Valchetta to the smaller, less predictable Piordo and hence serves to guarantee a more constant and larger flow in the Piordo. Ward-Perkins cites reasons for assigning an Etruscan date to this cuniculus and to the smaller cut-off type of cuniculus on the Piordo itself. He points out that, no matter what the original use may have been, the water diversion provided water power for a grinding mill in recent and medieval times, and probably in Roman time. He holds out the suggestion that the structures may point to an earlier and Etruscan date for water mills than thus far postulated.

Ponte Sodo at Veii.—The purpose of this best known of all the cuniculi in the Veii area is not clear. Perkins shows that the Ponte Sodo, which carries the Valchetta through a bedrock spur, was related to no city gate in the walls of Veii, and whatever its use, then, it was not designed as a major road crossing. He suggests that the Ponte Sodo pre-dates the massive fortifications of Veii and actually offered easy access to fields in the Valchetta Valley, fields which the creation of the cuniculus in part made possible by reclamation of river bottom and flood plain in the by-passed bend of the Valchetta.

We should point out here that the level of the modern fields is higher than the by-passed stream bed and flood plain. Up to four metres of silt has accumulated in the old bend since the cuniculus was first made. We cannot say when this silting took place, although elsewhere in small valleys it is most certainly subsequent to the early Empire. What is certain is that the details of the local geography have changed since the diversion was first made, assuming that this was a pre-early Roman Empire diversion, which seems more than reasonable; if reclamation was the reason for the diversion the reclaimed land looked differently than it does today.

As Ward-Perkins points out the Ponte Sodo is complicated by other tunnelling of differing ages at its upstream end. The cuniculus which leads through the bedrock spur has been enlarged by erosion since its construction. Enough remains however to demonstrate that its floor was 2.60 metres above the present stream, that it was driven from shafts in the same way that other cuniculi were driven, that it had a height of about 1.80 metres, and that its width was similar to that of other cuniculi, i.e., a little over a half metre. At the upstream end of the Ponte Sodo are the remains of three additional tunnel structures. One of these is the cuniculus noted by Ward-Perkins that cuts across the mouth of the present tunnel, and leads from the city cliffs on the right and through the tufo of the bedrock spur toward the now abandoned bend of the Valchetta. The floor of this cuniculus is 4.60 metres above the stream. We could not measure the height and width of the cuniculus but it appears to be of standard size and shape. The upper gallery referred to by Ward-Perkins has a floor that is also 4.60 metres above the stream. This structure is over three metres wide, less than two metres high, has a gently

²² Ward-Perkins, *op. cit.*

curving ridge line that cuts through the small cuniculus that crosses the mouth of the Ponte Sodo from the City. This gallery differs in several ways from the cuniculi that we have seen elsewhere. First it is much larger. Secondly, its roof line is not straight. Thirdly the pick marks do not define the direction in which the tunnel was driven. The workers in this tunnel were able to face the side walls and dress them from ceiling to floor so that the pick marks tend to be vertical rather than arched in the direction in which the tunnel was driven. The remains of a fourth tunnel survive on the right (south wall). The floor is 3.50 metres above the stream. It forms a part of the right (south side) of the upper gallery, but its height of 1.80 metres means that its roof is below that of the upper gallery. Pick marks arc downstream along the surviving wall of this structure.

Effects of the Cuniculi

In addition to achieving the results for which they were originally constructed the cuniculi have produced other effects. These effects have been impressed upon both the cultural and physical landscapes.

From the point of view of human occupancy one of the very marked effects of the underground drainage is the removal of a natural boundary line. Today where the stream is not cuniculated, or where the cuniculus has collapsed, property lines or field boundaries often reach to the stream bank. With the surface stream removed to the sub-surface one finds that pasture, field or olive grove extends uninterruptedly across the valley, and that property limits follow ridge line, road or arbitrary line. This effect could have been just as real in the past. Certainly the ability to remove a natural demarcation of property speaks as eloquently of political and economic organisation as it does of engineering capacities.

Secondly the cuniculi have made cross-valley circulation by man and domestic animal much simpler than it would be if the streams remained on the surface. The small surface stream is of itself an annoyance in crossing a valley. But a more serious barrier to such movement is the thick tangle of brush and briars that grow along the streamway today and presumably did so also in the past. Removal of a stream to the subsurface makes the elimination and control of this tangle a far easier task. Cross-valley movement over the countryside was easier, and still is, because of the cuniculus system, even though the system probably was not constructed with this in mind.

The cuniculi system has created a number of aberrant physical features related to the valleys. First, the underground drainage system has produced a series of dry valleys, i.e., valleys without central streamways. Even during heavy rains there is little run-off and that which does occur is unable to create natural streamways and must be artificially channelled.

Another effect lies in the cross-profile of the cuniculated valley as contrasted with that in which the stream runs at the surface. In the cuniculated valley the cross profile is gently concave upwards. The valley with a surface stream, unless the stream is channelled between bedrock walls, has a flat-floored valley underlain by alluvial deposits. At present these alluvial deposits are trenched by the modern stream and form matched terraces on either side of the stream.

A third physical effect occurs where the cuniculus has begun to collapse. In this instance a series of topographic depressions are formed, depressions reminiscent of sinkholes in country underlain by soluble rock such as limestone.

As a final feature, the complete collapse of a cuniculus leaves a valley with an open stream along the line of the old cuniculus. Because this line is on either the left or the right side of the valley a valley of asymmetric cross-section occurs, the surface stream being well removed from the axis of the valley.

In conclusion it may be remarked that to the extent that these cuniculi have in practice altered or retarded the normal processes of erosion, they not only afford a valuable index of the historical chronology of such processes, but they also offer us a glimpse of a landscape materially different from that which confronts us today. Whether viewed from the ground or, still more strikingly, from the air, the gentle contours of the cuniculated valleys stand out in striking contrast to those in which the streams have remained free to carve their own channels. It is the former which offer us the truer picture of the countryside as it was when the Etruscans first cleared it and brought it into cultivation.

SHELDON JUDSON, *Department of Geology, Princeton University.*

ANNE KAHANE, *British School at Rome.*

Cuniculi in Veii area mapped in Plate XXX. Map number refers to Plate XXX

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
1.	Fosso di Monte del Forno	Short existing section at 807552 carries present-day, unmetalled road. Bedrock walls suggest former greater extent of cuniculus both up and down stream to give estimated original length of 700 metres.
2.	Unnamed tributary from right to Fosso dell'Olgiata at 816571	About 250 metres. Parallels valley on right.
3.	Unnamed tributary from right to Fosso dell'Olgiata at 816568	About 200 metres. Drops abruptly for about 3 metres as it joins the main stream. Parallels valley on right.
4.	Unnamed tributary from left to Fosso dell'Olgiata at 818566	200 metres. Parallels valley on right.
5.	Lower Fosso dell'Olgiata	500 metres. Parallels valley on right.
6.	Lower section of Fosso di Feminamorta	400 metres. Diverts headwaters of valley of Cunicolo di Prato Inglese to upper part of Fosso Piordo. Mapped from air photographs.
7.	Lower section of Fosso di Ponte Coperto	150 metres. Parallel to right side of valley. Carries modern road and also ancient Veii-Capena road. Deep channel in bedrock suggest cuniculus may have extended farther upstream but this possibility not indicated on map.
8.	Lower section of Fosso di Pisciacavallo. 825587	75 metres. Diverts water into Fosso Piordo.
9.	Cunicolo del Prato Inglese	2300 metres. Upper section parallel to right side of valley and 2100 metres long. Some vertical shafts recently sealed with concrete where cuniculus said to have served as dump for explosives after World War II. Stream now emerges from cuniculus to cross valley in open. Enters lower section of cuniculus on left side of valley. For 125 metres this parallels valley. Then it swings east beneath ridge for 45 metres and empties into Fosso Piordo. Air photograph, Ward-Perkins, <i>op. cit.</i> , pl. III.

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
10.	Lower section of Fosso delle Rughe. 830593	300 metres. Parallels valley on right. Modern quarry road crosses this cuniculus.
11.	Fosso del Lavatore	Two existing lengths of cuniculi measure 300 metres and 250 metres and run parallel to valley on right. Deep bedrock channel offset to right side of main valley suggests an additional 700 metres of cuniculus. Original cuniculus probably continuous.
12.	Unnamed tributary from left to Fosso del Lavatore at 838600	350 metres. Diverts headwaters of tributary to Fosso del Lavatore. Begins in valley bottom then parallels valley on right for 150 metres. Then swings west beneath divide to Fosso del Lavatore in area of collapsed cuniculus.
13.	Unnamed tributary from left to Fosso del Lavatore at 841588	300 metres. Diverts headwaters of tributary to Fosso del Lavatore. Begins in valley bottom, then parallels valley bottom for 50 metres. Turns east beneath divide for 200 metres to Fosso del Lavatore in uncuniculated section. See also p. 86.
14.	Fosso di Grotta Gramiccia	Total of 1000 metres, in two parts. Upstream section consists of two branches, the larger 450 metres long and parallel to valley on right. Short section collapsed at lower end. Shorter branch of 150 metres joins on left after paralleling its valley on right and passing beneath mouth of cuniculated valley which it joins. Lower section of cuniculus separated from upper part by 100 metres of open stream which was never cuniculated. Lower section parallels valley on left. Etruscan road from Veii to Tarquinia and Vulci crosses valley downstream from this cuniculus. Air photograph of both sections, Ward-Perkins, <i>op. cit.</i> , pl. III. For the lower valley of this stream, see also No. 15.
15.	Northwest limit of Veii	650 metres. Leads beneath divide from Torrente Valchetta to Fosso Piordo via lower reaches of Fosso di Grotta Gramiccia. Emerges at Km. 1 of Cassia-Formello Road. An additional 100 metres to Piordo probably existed originally but has since collapsed. The Fosso di Grotta Gramiccia diverted by this last section to Piordo, thus by-passing its lower valley which enters Piordo another 300 metres downstream. See Ward-Perkins, <i>op. cit.</i> , p. 47 ff., pl. III.
16.	Fosso Piordo at 838558	About 100 metres. A cut-off of a spur on the right bank of the Piordo. See Ward-Perkins, <i>loc. cit.</i>
17.	Ponte Sodo	A cut-off of a bedrock spur on the Valchetta, see text (pp. 92-3) and Ward-Perkins, <i>loc. cit.</i>
18.	Arco del Pino, 853541	Originally probably a road tunnel down the cliffs to the south of the Piazza d'Armi, Veii. Now has the appearance of a natural arch, and probably will collapse completely before long. The remnants of a rectangular, brick-lined vertical shaft still preserved. See also L. Canina, <i>Descrizione dell'antica Città di Veii</i> , 1847, pl. XXIII.
19.	Upper portion of Fosso della Crescenza	About 350 metres. Parallels valley on right.

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
20.	Fosso degli Olmetti	About 5600 metres in two sections. The longer section measures about 4250 metres and parallels the right side of the valley. At 851581 it emerges and is in the open for about 300 metres. This section probably was never cuniculated. Just before entering the lower portion of the cuniculus in this valley the stream is bordered on the left side by courses of dressed tufo blocks, apparently ancient. The lower section measures 1350 metres. Etruscan road to Monte Aguzzo may or may not have used lower cuniculus to cross valley. It emerges from a bedrock nose in a waterfall, just below which are the exposed footings of a bridge-abutment on the Etruscan road to Capena. At 858575 about 75 metres of cuniculus lies above main cuniculus but parallel to it. Apparently an ancient error.
21.	Small tributary to Fosso degli Olmetti	300 metres. Parallel to right side of valley. Comes into open and joins cuniculated section of Fosso degli Olmetti.
22.	Fosso di Cisternozze	1100 metres in two segments. Both on right side of valley. Upper section 500 metres long. Lower section 600 metres and an additional 50 metres may have collapsed at downstream end. Etruscan road crosses uncuniculated section. This section is 450 metres long and probably never underground. The Etruscan road to Capena crosses near the downstream end of lower cuniculus.
23.	Fosso dei Costaroni	150 metres on right side of valley. Original cuniculus has collapsed both upstream and downstream from this segment as witnessed by the asymmetric position of stream channel in valley and deep bedrock channel. Original length about 800 metres. Etruscan road crosses below cuniculated section.
24.	Unnamed stream at 864562	75 metres. Right side of valley.
25.	La Villa, south of Formello	Total length about 350 metres. Consists of two cuniculi parallel to two different valleys connected by a third segment beneath the common divide of the two valleys. Cuniculus in western valley higher than eastern. The connecting cuniculus also higher than the eastern, and since construction erosion has pushed the waterfall junction westward toward the upper valley. 25 metres of collapse on downstream end of eastern valley. Cuniculus in western valley on left side, and that of eastern valley on the right.
26.	Unnamed tributary from right to Fosso di Pantanicci at 858588	175 metres. No real stream valley here. Cuniculus leads down hillside and modern road crosses it. Large collapse depression at head of cuniculus.
27.	Fosso di Pantanicci	425 metres. Left side of valley. Originally wider than the average cuniculus. Width a little over 1 metre. Etruscan road may have crossed upper end. Modern road crosses it.
28.	Unnamed tributary from left to Fosso di Pantanicci at 862582	10 metres. Collapse both upstream and downstream from this small remaining portion. Original length about 250 metres.
29.	Unnamed tributary from left to Fosso di Pantanicci at 863579	15 metres. Collapse both upstream and downstream from the remaining portion. Original length about 400 metres.
30.	Fosso di Monte Aguzzo	250 metres. Joins Fosso di Selva Piana. It cuts through small hill and diverts stream from lower section of valley.

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
31.	Fosso di Monte Oliviero	1600 metres. Parallel to right side of valley. Etruscan road to Capena crossed in uncuniculated section upstream from this cuniculus and downstream from the cuniculus of Fosso di Monte Aguzzo. Etruscan road from Veii to the Tiber crosses at 873576. In this section the vertical shafts are spaced at an average of 17 metres over a distance of about 200 metres.
32.	Unnamed tributary from left to Fosso di Monte Oliviero at 878567	Two sections totaling 400 metres. Upstream section 300 metres on right side of valley. Stream crosses valley in open to cuniculus on left side which continues for 100 metres before reappearing again at surface. Enters lower part of cuniculated section of Fosso di Monte Oliviero.
33.	Unnamed tributary from left to Fosso di Monte Oliviero at 890550	Etruscan road Veii-Prima Porta crosses this cuniculus at almost the same spot as the modern road. Lateral cuniculus from valley bottom at 887564. Further down valley two side cuniculi from hill side join main cuniculus.
34.	Headwaters of Fosso di Aqua Viva	150 metres. Mapped from aerial photograph.
35.	Fosso di Aqua Viva	800 metres in two sections. Upstream section 600 metres on right side of valley. At downstream end an additional 100 metres now collapsed. Stream crosses in open to left side of valley and flows in cuniculus for 200 metres. An additional 150 to 200 metres now collapsed at down-valley end of this cuniculus. Etruscan road crossed the lower section of cuniculus.
36.	Unnamed tributary from right to Fosso di Aqua Viva at 879593	300 metres on right side of valley. In upper section paralleled by Roman road.
37.	Fosso di Aqua Viva	300 metres. On left side of valley.
38.	Fosso delle Perazzeta at Le Tre Fossate	50 metres. On right side of valley. May have joined with cuniculus 37 of Fosso di Aqua Viva. Etruscan road to Capena crossed in uncuniculated section just below junction of this cuniculus with cuniculus 37. Upstream are abutments of Roman bridge abutments on the Monte Aguzzo <i>diverticulum</i> across uncuniculated section, but this may have collapsed in pre-Roman time.
39.	Fosso della Fontanaccia	450 metres. Right side of valley. Enters Fosso di Pietra Pertusa just above Etruscan road to the Tiber, which crosses the latter without benefit of cuniculus. Upstream a deep bedrock channel offset to the right suggests that originally there was an additional 450 metres of cuniculus.
40.	Unnamed tributary from left. Fosso di Pietra Pertusa. Exact grid cannot be located on Casale Marcigliana Map because of gross cartographic inaccuracies	250 metres. Left side of valley. Deep bedrock channel downstream suggests that an additional 300 metres was originally present but is now collapsed. Etruscan road, Veii-Tiber, crossed the now-collapsed cuniculus.
41.	Unnamed tributary to above. Exact grid location impossible because of gross cartographic inaccuracies	300 metres. Right side of valley. Etruscan road, Veii-Tiber, crosses this cuniculus.
42.	Unnamed tributary from right to Fosso Mole at 913615	125 metres in two sections. Upper section 100 metres. Lower section 25 metres. Right side of valley. Collapsed sections indicates an original continuous length of 500 metres.
43.	Unnamed tributary from right to Fosso Pantanelle at 916599	200 metres. Right side of valley.

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
44.	Unnamed tributary from right to Fosso Pantanelle at 917587	225 metres. Right side of valley. In headwaters of stream. Mapped from aerial photographs.
45.	Unnamed tributary from right to Fosso Pantanelle at 915580	500 metres with small section collapsed over distance of 50 metres in centre. Left side of valley, then swings north beneath low divide and carries stream completely out of its lower valley. Contains only observed example of circular vertical shaft.
46.	Road tunnel through cliffs of Flaminian ridge on east side of Fosso della Torracchia at 916574	70 metres. Leads through steepest section of valley wall. See text and figure 3.
47.	Road tunnel beneath Flaminian ridge at Km. 18 of Via Flaminia	350 metres. Western entrance clogged with silt in March 1962, and not entered. Eastern end not seen by us. Ward-Perkins reports its existence as a bramble-choked hole on east side of ridge.
48.	Fosso dei Monti Falasca	350 metres. Left side of valley. Quarry workings have destroyed an added 100 metres at downstream end. In addition a higher and apparently older cuniculus is exposed in section in quarry face.

Cuniculi in Cerveteri Area mapped in Figure 4. Number refers to Figure 4

<i>Map No.</i>	<i>Location</i>	<i>Description and Comments</i>
1.	Ponte Vivo north of Cerveteri on Fosso Marmo, Grid 606555	50 metres. Carries modern unmetalled road and ancient road from Cerveteri. Use as bridge?
2.	Fosso della Mola at about 646558	120 metres. Right side of valley. Mapped from Castel Giuliano 1/25,000. Topographic map and aerial photos. Drainage?
3.	Fosso Ponte Coperto at about 653566	100 metres. Carries stream down beneath basalt cliff. Contains one waterfall of at least 5 metres. Extensive subterranean erosion in lower portion. Upstream channel deeply cut in tufo, but probably this does not indicate once greater extent. Ancient and modern roads both cross this cuniculus.
4.	Leads from Valle del Baciadonne into drainage of Fosso di Ponte Coperto at about 654558	150 metres cut beneath ridge. Mapped from aerial photographs. Drainage.
5.	Empties into unnamed stream at 685552 near Casale S. Alberto	200 metres. Diverts small stream through a divide. Ancient road crosses this as does a modern unmetalled road. Valley drained by diversion used by ancient road.
6.	690542 in small stream tributary to Fosso delle Pertucce	150 metres. Left side of valley. Drainage.
7.	695542 at Fontanile delle Pertucce	75 metres. Roman. See text for description.
8.	738536 in small valley tributary from right to Rio Maggiore	175 metres. Begins on left side of valley cuts beneath divide to Rio Maggiore. Drainage. Mapped from aerial photographs.

Cuniculi outside areas mapped in Figures 4 and 5 and Plate XXX

<i>Location</i>	<i>Description and Comments</i>
Torrimpetra Map 1:25,000. Grid 538737. Stream tributary to Rio Maggiore	200 metres. Passes beneath ridge. Drainage? From aerial photos. Observer: Judson (Photo. ref: 12S-175-4044).
Campagnano di Roma Map 1:25,000 Grid 875664 In Sorbo crater	Length 260 metres. Right side of valley. Three shafts visible, others may be blocked. Use, drainage? Lies between M. Prato on east and M. Capeccchio, west. Observers: Kabane, Ward-Perkins, Murray Threipland.

<i>Location</i>	<i>Description and Comments</i>
Monte Mario Map 1 : 25,000 Grid 864527 Unnamed tributary from right to Fosso della Crescenza	300 metres. Right side. Parallel to valley. The stream is now all in the open, but the extreme asymmetrical position, the straight course and the shape of the valley floor all indicate the former existence of a cuniculus. Observer : Kahane.
Monte Mario Map 1 : 25,000 Grid 884513 Small tributary from left to Fosso della Crescenza	50-60 metres, empties into quarry. Parallel to valley. Left side. Some collapse upstream. Carries Via Veientana, and may have been designed for this purpose. Observer : Judson.
Rignano Flaminio Map 1 : 25,000 Grid 952727 Small tributary from left to Fosso di Vallelunga	Now 40 metres, but was once longer. Left side and parallel to valley. 2 ventilation shafts. Observer : Jones.
Rignano Flaminio Map 1 : 25,000 Grid 971717 On unnamed stream flowing around south side of Ancient Capena	50 metres. Well-cut entrance. Two waterfalls now exist within tunnel. Probably cut to drain shallow lake. Observers : Eastwood, Jones, Kahane. See further Jones, <i>PBSR</i> , xxx, 1962, pp. 143-4, fig. 9 and pl. XXVII.
Castelnuovo di Porto Map : 125,000 Grid 908684 Fosso Monti Rosi	200 metres. Right side of valley and parallel to valley. Several partially collapsed shafts. Drainage? Observer : Judson.
Castelnuovo di Porto Map 1 : 25,000 Grid 916651 Fosso Costa Frigida	200 metres. Right side, Cuts through shoulder of hill. Several ventilation shafts. Drainage? Observer : Kahane.
Castelnuovo di Porto Map 1 : 25,000 Grid 916689 Fosso dei Quattro Pali	26 metres survive in two sections, one 8 metres, the other 18 metres. Total original length 55 to 60 metres. Use? Observers : Ward-Perkins, Kahane, Jones.
Roma Nord Map 1 : 25,000 Grid 911504 Tributary from SW to Fosso del Mugnaio	50 metres. Just upstream from junction. Use? Observer : Kahane.
Colonna Map 1 : 25,000 Grid 132407 Stream flowing NNW between Colle degli Zecchini and Colle di Mezzo. Tributary to Fosso Passerano	Length 2-300 metres. Passes beneath ridge just north of Fontanile dello Spino taking water into Fosso Passerano. At least 2 vertical shafts. Carries an ancient and a modern road. Observer : Kahane.
Palestrina Map 1 : 25,000 Grid 206385 Stream unnamed in this section, called Fosso di Acqua Rossa further north	100 metres. Left side of narrow valley. No shafts visible. Carries modern road. Original use drainage? Or to carry road? Present roof section is square and about a metre wide, but may originally have been of normal shape, later squared off. Roof 7 metres above present water level, and 6 metres below present ground level. Observer : Kahane.
Montalto di Castro Map 1 : 25,000 Grid (QM)183980 Fosso Timone : known locally as the Ponte Sodo	100 metres at the point where the stream drops off the high ground into the main Fiora valley. Cart-tracks in the rock surface above show that it was used in ancient times as a roadway. No visible traces of artificial cutting in the interior, which is very large and heavily lime-encrusted. If artificial, it has been greatly modified by subsequent erosion; adapted in recent times to drive a paper mill. Observer : Kahane.

Corrigenda. Figs. 1 and 2 : for Sutricum read Satricum
Plate xxx: for Felasca read Falasca

CAPENA AND THE AGER CAPENAS: PART II.

(Plates XVIII—XXIX)

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The classical topography of the southern and central Ager Capenas has been described in the preceding volume of the Papers (*PBSR*, xxx, 1962, pp. 116–207, hereafter referred to as Pt. I). In this, the second section of the report, the field survey is concluded with a description of the northern Ager Capenas. There follows a discussion of the development of settlement within the area as a whole and some of the more interesting archaeological features discovered during the survey. The final section deals with the characteristics of the Roman buildings in the area and incorporates a report on the excavation of a small Roman farm in the central Ager Capenas.

To the list of acknowledgements already made (*ibid.*, p. 117) I would like to add the names of Miss G. D. Jones, Mr. G. Duncan, Mr. W. A. C. Knowles and Mr. D. W. R. Ridgway, who all helped in the preparation of the second part of this report.

(j) *The Via Tiberina* (fig. 1)

In a previous section the course of the Via Tiberina has been traced conjecturally north of Lucus Feroniae across the plain towards the crossing of the Valle dell' Inferno on the eastern side of Fiano Romano (Pt. I, p. 201). Fortunately there is no doubt where the road negotiated the difficult obstacle presented by the steep-sided valley; a shallow cutting and a scatter of *selce* paving blocks are visible on the eastern side of M. Bove above site 294. The next section, however, is not entirely clear; the reason lies in the geological change that affects most of the area between Fiano and Ponzano. Instead of tufaceous rock, the surface geology is largely composed of tertiary clays associated with M. Soracte.

Under these conditions road terraces and cuttings are frequently eroded out of all recognition and sherds are washed far from their original nucleus. Fortunately the overall course of the next section of the Via Tiberina is traceable; it can be followed in a series of terraces and cuttings from the vicinity of the road junction at km. 32.4 of the modern Tiberina (a kilometre south-west of Nazzano) along a

prominent ridge that runs north-west past Babbuino and M. Uccio to the Tiber crossing at Badia. Viewed from M. Soracte (pl. XXIX) the topographical advantages of this line become clear. It is the only continuous ridge route in the area to by-pass the difficulties of the Tiber loop at Nazzano and offer quick access to the next section of the river valley above Ponzano. Its course is lined with Roman sites throughout. On the eastern side, however, along the western slope of the Tiber valley between Fiano and Nazzano many of the details have been destroyed by erosion and are unlikely to be discovered.

South of Casale Meana all the evidence has been lost on the edge of the valley floor. At the *casale* the road was faced with two possibilities—to climb the convenient M. Grasso–M. Orsolino ridge to the north-west and so join the ridge connecting the Flaminia–Fiano road (Pt. I, p. 181) with the Nazzano area at Casale Laurana or to follow the valley floor to Nazzano before making the ascent. There is little doubt that the road followed the former course. In the first instance the work on the Autostrada del Sole near site 294 and below the line of the Via Tiberina uncovered traces of a trackway apparently following the valley bottom. It appeared in section in the western face of the autostrada cutting as an unpaved and deeply entrenched track leading towards Casale Meana (v. below, p. 136). Secondly the M. Grasso–M. Orsolino ridge does contain evidence of an ancient road on its eastern flank a kilometre above Casale Meana at 015747; below this point the heavily eroded clay hillside could not be expected to have retained traces of a road cutting. The upper section of the ridge continues to show indications of an ancient road and it is, moreover, the only ridge in the area to have been settled extensively (sites 295–304).¹

At Casale Meana (295) two barrel-vaulted cisterns belonging to the site now overlaid by the main farm-buildings can be seen on the western side of the present approach track. One of the cellars in the farmhouse also incorporates much Roman work and on the northern side a drainage *cuniculus* was revealed by work on the Autostrada del Sole. The next prominence on the hillside above was also occupied by a substantial site (296). Between the next two scatters of pottery and tile (297, 298) the hillside is covered in thick scrub woodland. This section of the ridge (known as Fontanaccia) showed traces of two nuclei (299, 300), the former perhaps an outbuilding of the latter. Immediately below the last site a road terrace becomes visible (c. 4 m. wide) and can be traced on towards the saddle separating M. Grasso and M. Carboncello (014755). The crest of M. Grasso is occupied by the remains of a site (301), likewise M. Orsolino and the hill on which Casale Laurana is situated (302, 303). Along this section the ancient road is embodied in a deeply-entrenched lane lined with trees on either side. At Casale Laurana it leads on to the ridge that connects the Flaminia–Fiano road at S. Lucia with the Nazzano area. The modern road has removed all trace of the ancient route but there is a site a few hundred metres west of the *casale* (326) and another on the eastern side of the road at the south-eastern end of M. Ripone, a kilometre short of Nazzano (304).

¹ The length of these remarks is prompted by Ashby's strange rejection of the correct route in favour of an entirely unproven line closer to Nazzano (*Memorie*, p. 144). He does, however, quote from the unpublished notes of Pasqui who advocated the M. Grasso–M. Orsolino line and saw much more Roman material on the ridge than is visible today.

- 295 019727. A medium-sized site on the eastern slope of M. Bove, slightly below the line of the Via Tiberina.
Terra sig., Red Polished and coarse wares, B.T.
- 296 022735. Casale Meana (sometimes referred to as Osteria di Meana): a prominent farmhouse at the foot of the Fontanaccia spur overlooking the Tiber valley south-east of Civitella S. Paolo. The modern buildings lie on the site of a substantial Roman farm. The most obvious ancient remain is formed by a pair of barrel-vaulted cisterns in poor limestone concrete visible to the west of the present approach track. The two chambers are 5.9 m. long, 2.65 m. wide, and separated by a wall 0.5 m. wide. The present height of the chambers is c. 2.05 m. but their original height was greater because the interior has become filled by detritus. The northern wall of the structures continues a further 5.8 m. towards the modern farmhouse whose cellar incorporates a fragment of Roman vaulting. On the northern side of the site work on the Autostrada del Sole in 1961 revealed two walls and a drainage *cuniculus* in section (cf. Ashby, *Memorie*, p. 143).
 Black-glazed ware; Red Polished and coarse ware. Amph., dol., B.T.
- 296 019737. The remains of another substantial site on the rounded spur overlooking Casale Meana.
 Red Polished and coarse wares; B.T., tufa and travertine blocks.
- 297 018739. A pocket of tile from a small building at the edge of the dense *macchia* at the lower end of the Fontanaccia ridge.
 Roman tile.
- 298 017743. A small nucleus of Roman material on the ridge crest of Fontanaccia, c. 400 m. below the hut overlying site 300.
 Coarse ware; amph., B.T.
- 299 016744. Another small pocket of pottery on the ridge crest c. 120 m. below site 300.
 Coarse ware: B.T.
- 300 015746. The remains of a site overlaid by a modern hut (Spot Height 174 m.) above the road terrace of the Via Tiberina on the upper slope of Fontanaccia.
 Coarse ware; B.T.
- 301 013756. The scattered remains of a Roman nucleus on the southern crest of M. Grasso west of the line of the Via Tiberina.
 Coarse ware; amph., dol., B.T.
- 302 010760. A small nucleus of tile (from an out-building?) on the crest of M. Orsolino west of the Via Tiberina.
 Roman tile.
- 303 009764. The scatter from what was probably a substantial site on the south-western side of Casale Laurana (Spot Height 254 m.).
 Coarse ware; B.T.
- 304 013772. A handful of sherds on a small spur east of the modern road.
 Coarse ware; B.T.
- For site 326, west of Casale Laurana, v. the M. Verde section (p. 107).

Near site 305 on M. Ripone (008778) the Via Tiberina turns north-west along the five-kilometre ridge that leads to Badia. The first definite traces of the ancient road occur beyond site 306 where a prominent cutting (pl. XVIII, a) bisects the crest of Campolongo.² This cutting continues for several hundred metres towards the modern track junction beside site 307, where a footpath passing site 308 leads to the church of S. Francesco a kilometre to the north. Along the next section of the ridge to the farm of Babbuino the Roman route appears for much of its course as a terrace (5 m. wide) above the present farm track. The north-western side of the farm overlies a very eroded Roman nucleus (309) and the modern footpath

² This cutting alone (pl. XVIII, a) should have been enough to convince Ashby that this route (previously identified by Pasqui) was the correct line of the road. The clear indications of site 306 contradict his statement: 'Avendola percorsa, non ho visto più niente sulla collinetta ad ovest di S. Valentino, ove il Pasqui vide una cisterna presso il taglio della via' (*Memorie*, p. 145). He appears to prefer an unproven cross-country route past S. Francesco (*op. cit.*, pp. 144-5). It is unfortunate that the exact provenance of a Republican milestone belonging to the Via Tiberina and first noticed at Nazzano remains a mystery (cf. p. 135).

incorporates all that remains of the road for half a kilometre to the ridge crest known as Pilocchetto, where the original road terrace is visible below site 310. The Muracce spur to the south also yielded sherds of Roman origin (311).

The ridge then narrows to the point where site 312 crowns the crest called S. Martino (219 m.); there the M. Pelliccia ridge,³ on which lies a pair of Roman sites (313 and 314), continues north-westwards while the main ridge turns due north past site 315. In this section the soil is very eroded and the only convincing example of a road cutting occurs on the eastern side of the crest (198 m.) crowned by site 316, south of M. Uccio. Beyond this point there is little certainty, but topography dictates that the road must have followed the ridge crest across M. Uccio and started its descent towards Badia beside site 317. As the ridge drops to the valley floor all trace of the road disappears but it probably reached the end of its descent close to site 318, a few hundred metres west of Badia.

- 305 008788. A handful of Roman sherds on the flat-topped crest of M. Ripone, a kilometre south-west of Nazzano.
Coarse ware; B.T.
- 306 004783. A fairly substantial site ploughed out on the south-eastern slope of Campolongo at the end of a prominent road cutting (apparently a cistern seen by Pasqui according to Ashby, *Memorie*, p. 145).
Red Polished and coarse ware; amph., dol., tufa and travertine blocks; curved tile, B.T.
- 307 001786. A handful of sherds on the hillside south of the modern track junction at 001787.
Coarse ware; B.T.
- 308 002790. A well-defined nucleus below an electricity pylon on the S. Francesco ridge.
Black-glazed ware; Red Polished and coarse ware; B.T.
- 309 993791. Babbuino: a very eroded nucleus on the north-western side of the farm.
Coarse ware; B.T.
- 310 987794. Pilocchetta: a ploughed-out nucleus on the ridge crest above the terrace of the Via Tiberina.
Red Polished and coarse ware; amph., dol., B.T.
- 311 984791. Muracce: a scatter of Roman material on the spur south of Pilocchetta.
Coarse ware; B.T.
- 312 983798. A site under grass on the ridge crest known as S. Martino where the M. Pelliccia ridge diverges from the main ridge followed by the Via Tiberina.
Red Polished and coarse ware; amph., B.T.
- 313 977800. M. Pelliccia: a site near Spot Height 168 m. at the south-eastern end of the ridge.
Terra sig., and coarse wares; amph., B.T.
- 314 974808. A very small nucleus on the northern slope of M. Pelliccia.
Coarse ware; B.T.
- 315 984802. A small pocket of Roman material on the northern side of S. Martino.
Red Polished and coarse ware; B.T.
- 316 979813. A small nucleus on the ridge crest (198 m.) half a kilometre south-east of M. Uccio.
Red Polished and coarse ware; B.T.
- 317 977819. A compact site occupying a projecting ledge on the northern slope of M. Uccio.
Coarse ware; tufa ashlar; B.T.
- 318 978825. The eroded remains of the building platform (c. 35 m. square) supporting a fairly substantial site on the northward facing slope overlooking the Fontanile delle Primare.
Black-glazed ware; Red Polished and coarse ware; reticulate tuffelli; tufa ashlar; amph., B.T.

Around Badia (S. Andrea in Flumine) (pl. XVIII, *b*) there is a closely knit group of sites. The church itself overlies an earlier site (319) and on the southern side of the track from Ponzano another medieval ruin probably conceals the remains of a Roman building (320). On the same side of the Fosso Villarolo four

* The northern tip of the ridge was occupied by a pre-Roman settlement (323), v. p. 105.

hundred metres upstream the excavation of a cutting for the Autostrada del Sole has disclosed a room of a Roman building in section beneath a small modern farmhouse (321). The details are set out below (p. 106, pl. XIX, a). On the edge of the Tiber the importance of Badia as a river crossing is recalled by the name Portovecchio applied to the area north of the church. Until the great flood of 1900 the remains of a Roman building were visible on the Sabine bank of the stream. It marked the site of an important river ferry similar to that at Fidenae.⁴ On the edge of the flood plain east of Badia stood a large *villa rustica* now chiefly recognisable by the retaining walls of the large platform (c. 60 m. by at least 50 m.), on which the main block of rooms was built (322). It is extensively constructed in *opus reticulatum* and its foundation probably dates from the first half of the first century A.D. It occupies an unusual position on the very edge of the valley floor close to the Tiber, identical in many ways to that enjoyed by site 340 below Torrita Tiberina. The siting may have been deliberate; river traffic carried a larger share of trade in antiquity than one would guess from modern practice. Even a small river like the Umbro was *navigiorum capax* (Pliny, N.H., 3, 51) and the Anio *navigabilis* (*ibid.*, 3.54). Pliny the Younger sent produce down the Tiber from his villa (which lay east of Arretium, close to the Tiber near Tifernum Tiberinum) to Rome in both winter and spring.⁵ The siting of many of these riverside villas like the one now in question was probably designed to capitalise on the possibility of river transport to Rome during most, if not all, of the year.

In view of the presumed pre-Roman origin of the Via Tiberina (Pt. I, p. 127) and the proven existence of a pre-Roman road leading to the Badia crossing around the northern end of M. Soracte (p. 117), it would be strange if there were not a pre-Roman settlement in the area. One was found on the northern tip of M. Pelliccia one and a half kilometres south-west of Badia. Exploration was made very difficult because the end of the ridge is covered by dense undergrowth and drops very steeply to the valley floor. Enough pre-Roman pottery was found, however, to show that the site (323) represents a small *pagus* settlement similar to several examples occupying easily defensible positions in the Ager Faliscus.⁶ The coarse impasto sherds are all in a very abraded condition; their original standard was, in any case, very poor, being little better than that of the pottery from the site below M. Ramiano (370, p. 119), though one wall fragment showed a pattern of small circular indentations familiar from Villanovan decorations.

- 319 984823. Badia (S. Andrea in Flumine): the Romanesque church incorporates the materials of an earlier building dating from the 8th or 9th century. There is little doubt that the present buildings overlie an extensive earlier site. Tomassetti and Ashby noted walls in section on the approach track from the south and a white mosaic with a border and lozenges in black associated with a reticulate wall on the eastern side of the area (Tomassetti, Vol. I, 527; *Memorie*, p. 151).

Red Polished and coarse wares; amph., dol., B.T.

⁴ The river-crossing linked the northern Ager Capenas with northern Sabinum, in particular the town of Forum Novum at Vescovile near Selci. Probable traces of the Roman route from Forum Novum to the Badia crossing have been found north of Forano.

⁵ *Navium patiens omnesque fruges devehit in urbem, hieme dumtaxat et vere*. Ep. 5.6.12. cf. Strabo on the branches of the Tiber down which goods could be shipped to Rome (5.3.7.) and Columella, R.R., 1.2.3.

⁶ e.g. the Faliscan site of Ponte del Ponte north of Corchiano, v. *PBSR*, xxv, 1957, p. 123, fig. 20.

- 320** 983821. A medieval ruin probably, but not certainly, conceals a Roman building a hundred metres from Badia on the south side of the track from Ponzano.

Coarse ware; B.T.

- 321** 983817. A room of a Roman building revealed beneath a modern *casale* by the construction of the Autostrada del Sole along the eastern side of the Fosso Villarolo. The site lies in a side valley on the southern fringe of the ancient settlement clustered round Badia (pl. XIX, a).

The structure lay along a north-south axis of 335° and the road cutting has carried away the western room wall so revealing the northern and southern walls in section. The exposed room was 8.30 m. wide. The southern wall, the better preserved of the two, reaches a maximum height of 1.20 m.; the walls are built of coarse *tuffelli* and light cream mortar with a fine external coat. The structure was probably a living room because a few fragments of dull green wall plaster were found adhering to the interior of the southern wall.

Black-glazed ware; Red Polished and coarse ware; B.T.

- 322** 993822. The S. Lorenzo villa: an important site two hundred metres from the farm of S. Lorenzo a little under a kilometre due east of Badia. As often, only the platform of the structure survives. It is heavily overgrown and much eroded but probably measured c. 60 m. by at least 50 m., with the front of the building set on the north-west south-east axis. The only point where standing remains are preserved lies on the eastern side; a small farm hut incorporates a section of *opus reticulatum* in its side wall. Pasqui observed three Ionic capitals of good quality when he visited the site (Ashby, *Memorie*, p. 150).

Red Polished and coarse ware; amph.; B.T.

- 323** 972812. A pre-Roman settlement on the final spur of M. Pelliccia overlooking the Fosso di Canali, one and a half kilometres south-west of Badia. The sherds are all of very coarse impasto ware made from the very gritty local clay. The fragments are very abraded, but one preserved a pattern of small circular indentations.

The Monte Verde Ridge

Beside site 233 near the small chapel of S. Lucia (985746) on the Flaminia-Fiano road (Pt. I, p. 181) a series of ridges curving in a north-eastern direction offer quick access to the Nazzano area. The line crosses the *bivio* to Civitella S. Paolo at M. Verde, passes the disused Convento di S. Scolastica (where the M. Calve ridge diverges to the north-west), and so joins the course of the Via Tiberina at Casale Laurana (p. 101). This link road was probably never of very great importance and the construction of the modern road has left few traces of its course along the narrow ridge crest. Pasqui, however, who saw the evidence in much better condition than is possible today, was convinced that such a road existed.⁷ The only points at which satisfactory traces of an ancient road survive occur on the eastern side of Casale Testaccio, on the western side of M. Verde beyond the *bivio* to Civitella S. Paolo, and on the southern slope of M. Termine half a kilometre beyond S. Scolastica. Only slight traces of buildings are preserved along the route; the construction of the *bivio* 300 m. to the north destroyed a small cistern in *opus signinum* (324). East of the Convento di S. Scolastica the modern road cutting has revealed traces of a substantial building apparently associated with a burial ground, from which five inscriptions are derived (325). The ridge then turns to the east, and four hundred metres short of the Via Tiberina at Casale Laurana another site lies on the hillside south of the modern road (326).

- 324** 989754. At this point immediately north of the *bivio* to Civitella S. Paolo improvements to the road a few years ago destroyed a small (apparently cruciform) cistern, comparable with that at site 220. No other information is available.

⁷ Implied by Ashby, *Memorie*, p. 165.

- 325** 994764. Convento di S. Scolastica. The modern road which curves below the site to the east has revealed traces of a Roman structure in section along the western side of the road cutting.
 Red Polished and coarse wares; B.T.
 The site was apparently associated with a small cemetery area which yielded four funerary inscriptions published by Gamurrini, *Not. Scav.*, 1890, p. 78. Most of the burials were *tombe a cappuccina*. The inscriptions were subsequently republished in *CIL*, XI, 7766, 7777, 7779, 7781.
- 326** 006766. A modern ruin overlying an ancient site on the ridge crest between Casale Laurana and S. Scolastica to the south of the modern Fiano-Nazzano road.
 A column base in Luna marble; coarse ware; B.T.

The M. Calve Ridge

This ridge forms a north-western spur of the series of ridges that links the Flaminia-Fiano road at S. Lucia (986746) with the Nazzano area. It diverges from the main ridge between the Convento di S. Scolastica (overlying site **325**) and M. Termine; topographically it has a major and a minor spur, the ridge to M. Calve proper and M. Oncia to the south-west. The ridge was not followed by any ancient road (the Via Tiberina ran along the next ridge to the north) but it did contain a number of fair-sized sites which were probably linked by a service road. The first of these (**327**) occupied a crest (248 m.) at the start of the M. Oncia ridge, the second (**328**) lay below it in the flat watershed between the two ridges. To the north on the ridge crest running towards M. Calve two sites (**329**, **330**) are separated by two hundred and fifty metres. Across a small saddle the next crest (215 m.) was heavily occupied; a small nucleus survives on the north-eastern slope (**331**), while the whole summit is occupied by an extensive scatter of Roman material (**332**). No further sites were found along the ridge. The nuclei did not yield a great deal of pottery, but the black-glazed ware and *terra sigillata* at site **330** suggest that the ridge may have been settled at an early date in the Roman period.

- 327** 990768. A typical site on a spur crest (248 m.) at the south-eastern end of M. Oncia.
 Roman coarse ware; B.T.
- 328** 992769. A scatter of material near a mound formed by trees on the watershed between the M. Oncia and M. Calve ridges.
 Roman tile; no pottery available.
- 329** 991772. A medium-sized site at the south-eastern end of the ridge to M. Calve.
 Coarse ware; B.T.
- 330** 989775. A substantial site on Spot Height 226 on the M. Calve ridge.
 Black-glazed ware; *terra sig.*; coarse ware, amph., B.T., and a quantity of cinder.
- 331** 986776. Traces of a structure on the western side of the saddle created by a tributary of the Fosso dei Quattro Confini.
 Coarse ware; B.T.
- 332** 985776. Scatter of Roman material extending from 985775 to 985778 around Spot Height 215 m.
 Coarse ware; B.T.
- In the last century a Christian catacomb was discovered on the area known as Cerreto, the central section of the M. Oncia ridge (*Bull. Arch. Crist. Ser. II*, vol. V, 1874, p. 180). The site is no longer traceable.

(k) *Nazzano: Civitas Sepernatium* (pl. XIX, a, b; fig. 1)

It is never very satisfactory to presume the existence of an ancient site beneath a modern town without being able to point to actual remains *in situ*, but there is

little doubt that the hill now occupied by Nazzano formed a centre of habitation in antiquity. The site now crowned by the Orsini castle (shown in pl. XIX, *b*) holds a striking position overlooking the Tiber bend and the distant Lucus Feroniae plain (pl. XIX, *c*). In 1911 Stefani noted (along with much Roman material) several blocks that might have belonged to a wall circuit (*Not. Scav.* 1911, p. 441). The present town, however, occupies the obvious position for a settlement and any remains have long been covered; for proof one must turn first to the extensive Roman and pre-Roman cemeteries that surrounded the town on all sides except the south, where the ground plunges down to the Tiber, and secondly to the architectural fragments found close to the church of S. Antimo above the town.

The Benedictine abbot Angelo di Costanzo was the first to note pre-Roman tombs west of the town in his *Odeporicum* preserved as a manuscript in the library of S. Paolo at Rome.⁸ Discoveries multiplied in the 1870's. In 1873 W. Herbig published a selection of material from *fossa* graves on the hill then known as Colle Caraffa, which forms the continuation of the ridge north of S. Antimo (*Bull. dell' Inst.* 1873, pp. 113-23). The succeeding years saw the construction of the road linking Nazzano and Torrita Tiberina two kilometres to the east. During the work an Etruscan tomb was found, presumably in the Valle S. Lucia which forms the western slope of M. S. Pietro ('nel territorio di questo commune prossimo a quello di Torrita Tiberina'). The discovery was published in *Not. Scav.*, 1879, p. 112, and in the following year another *tomba a camera* was located in the same area (*Not. Scav.*, 1880, p. 378). By the early years of this century more grave material, including combs, bracelets, pins and large *fibulae*, had accumulated from Valle S. Lucia and Stefani published the finds in *Not. Scav.*, 1911, pp. 433-42. He also took the opportunity to investigate the kind of burial involved and uncovered a single *fossa* grave with an intact skeleton, *fibulae*, bracelets, necklace, distaff and associated pottery. At the time (1911) it was possible to see a collapsed *tomba a camera* on Colle Caraffa north of S. Antimo and a continuous scatter of pottery from the burials in the area is still visible today. More tombs yielding a high proportion of painted wares had been found on the western side of the town in the area known locally as the 'Prato'. It was on this side too that most of the Roman burials were located, generally in the form of *tombe a cappuccina*, skeletons covered by tiles set in the shape of an inverted V. The similarities between the pre-Roman cemetery material at Nazzano and Capena are well-marked, particularly among the boat-shaped *fibulae* and those with large semi-circular arcs (*ad arco ingrossato*) which frequently have bronze rings inserted on the bow. Neither at Capena nor Nazzano can any of the finds truly be called Villanovan in character. The earliest burials at both places appear to belong to the eighth century, and the pottery from Nazzano especially, with its incised swastika and wave patterns, has close affinities to the sub-Appennine tradition traced in the Latian culture by Peroni.⁹

⁸ 'A tempo mio fu scoperto ivi vicino (presso la chiesa di S. Antimo in territorio di Nazzano) una grotta sepolcrale o ipogeo, e vi fu trovato un scheletro, una lancia, due o tre vasi con pitture vulgarmente chiamati etruschi di disegno pero rozzo e una quantita di rottami di vasi di creta.' Quoted by Stefani, *Mon. Ant.*, xvi, 1906, c. 282, n. 2.

⁹ R. Peroni, 'Tradizione Subappenninica nella Decorazione Ceramica della Cultura Laziale', *Archeologia Classica*, x, 1958, pp. 243-54.

Nor is there lack of material from the Roman period. In the vicinity of the Church of S. Antimo above the present town (pl. XIX, *b*) forty-four inscriptions have been found. Among them the record of *decuriones* and *seviri* in *CIL* XI, 3871 (dated to A.D. 199) indicates an independent municipal organisation on the site. Other inscriptions attest the worship of Diana, Magna Mater and Bona Dea (XI, 3859, 3861, 3866; 3867-70 also seem to belong to the cult of Bona Dea). There are also dedicatory inscriptions to Septimius Severus and other third-century emperors (XI, 3874-6). The actual church of S. Antimo lies on the site of an ancient building, parts of which were revealed by repairs to the north side of the church in 1961. The columns now incorporated in the fabric of the building probably belonged to an ancient building nearby. In 1868 excavations were made close to the church by an otherwise unknown Sig. Ambrogio, and these revealed traces of a circular temple. Lanciani visited the site in September of the same year only to find the excavations had been filled in. With the help of the local sacristan, Bartolomeo Mirra, however, he was able to record some important information. From the curvature of a fragment of frieze he deduced that the diameter of the temple could not have exceeded twenty metres. He also found fragments of the lintel and of the temple steps which had been incorporated in the structure of the church. The Ionic columns also preserved there belong to different varieties of marble and so are unlikely to have originated from one and the same building. Lanciani also observed a pavement of large tiles that had apparently been in contact with fire.¹⁰

The real problem of the site centres round the suggestion that the fragmentary inscriptions preserved in *CIL*, XI, 3867-3870 contain the name *civitas Sepernatium* derived from a *pagus* or *vicus Sepernatium*. This would equate the site with a known nucleated settlement like the *pagus Arusnatium* in northern Italy.¹¹ Much depends on the origin of the word *Seperna* and it has been suggested that it is the name of a goddess of Illyrian origin.¹² *Seperna*, in fact, is more probably derived from the root *Sepr-*, which is recorded in Etruscan inscriptions (*Sepr-* *Sepurius*).¹³ It is an Etrusco-Latin ethnicon derived from the root *Sepr-* and, if the inscriptions referred to the gentilician name of a goddess, it would not have had the *-as*, *-atis* termination. The problem of the *Capenates foederati* and the explanation of *CIL*, XI, 3939 (*trium civitatum omnibus honoribus functus*) has been discussed before (Pt. I, p. 124). There would be no difficulty in finding a place for a *pagus* or *vicus Sepernatium* within the *Capenates foederati*. The ancient inhabitants of the Nazzano site may be the *vicani* mentioned in *CIL*, XI, 3936. The *vicani* of the *vicus Martis Tudertium*, for example, lived fourteen kilometres from the site of Tuder but were nonetheless regular citizens of the community (*CIL*, XI, 4742-65).

Altogether the necropolis areas around Nazzano and the various discoveries made at S. Antimo close to the town leave little doubt that it was an ancient

¹⁰ *Bullettino dell' Istituto*, 1870, p. 26.

¹¹ v. esp. S. Mazzarino, 'Sociologia del Mondo Etrusco e Problemi della tarda Etruscità', *Historia*, vi 1957, pp. 98-122. cf. W. Schulze, *Zur Geschichte Lateinischer Eigennamen*, p. 569.

¹² *CIL*, xi, 3868. n.

¹³ I am grateful for this suggestion to Dr. S. Weinstock. cf. W. Schulze, *op. cit.*, p. 157. *Sepr-* is found in *CIE*, 1310 (from Clusium) cf. *Sepurius*, *CIL*, xi, 3481 (from Tarquinii).

inhabited centre, probably the *civitas Sepernatium* conjectured from the group of fragmentary inscriptions mentioned above.

The area round Nazzano shows ample evidence of ancient settlement apart from the cemetery zones discussed above (p. 108). With few exceptions the sites occupy the ridges overlooking the Tiber loop. Two Roman nuclei (333, 334) were found on the crests of Monte S. Pietro above the Valle S. Lucia where the discoveries described on p. 108 were made. The hill of S. Antimo (p. 109) still shows traces of extensive occupation (335), as does the northward continuation of the ridge on which it stands. The three sites in question (336, 337, 338) are not associated with burials but represent normal settlement.

Sociologically, however, the character of the countryside in the northern Ager Capenas differs from that of the area to the south. There are fewer sites and large *villae rusticae* become a commoner feature of the landscape; two examples survive in the confined area east of Nazzano. The first of these (339) occupies the crest of the scarp on Cisterne above the Nazzano-Torrita Tiberina road. Nothing of the main buildings survives except a 36 m. retaining wall and the remains of an open circular tank (pl. XX; fig. 2). Both the modern farmbuildings nearby overlie Roman cisterns. The second example (340) lies on the edge of the valley floor a kilometre south-east of Torrita Tiberina. The platform on which the building rested shows evidence of substantial additions to the original plan (pl. XXI, a; fig. 3). The site closely resembles that of 322, a kilometre east of Badia, and like it may have been designed to make use of the Tiber waterway.

- 333 022797. A small scatter of Roman material on the north-eastern tip of Monte S. Pietro north-north-east of Nazzano.

Coarse ware; B.T.

- 334 021794. A medium-small site east of the farmhouse in the centre of Monte S. Pietro.

Coarse ware; B.T.

- 335 The hill crest beside the church of S. Antimo.

Terra sig.; Red Polished and coarse wares. Window glass and glassware; B.T.

A trench cut along the north side of the church during restoration work in 1960 uncovered traces of earlier walls.

- 336 016791. A nucleus of Roman and pre-Roman material beside a modern well on the ridge north of S. Antimo.

Two rims of Etruscan impasto ware; a large variety of black-glazed pottery, including a circular pattern of black glaze applied to cream ware; Red Polished and coarse wares; curved tile; B.T.

- 337 015791. A site on the ridge north of S. Antimo above the road to Ponzano Romano.

Coarse ware; B.T.

- 338 015801. A small nucleus of Roman material on the ridge crest above the Nazzano-Ponzano road one and a half kilometres north of S. Antimo.

Coarse ware; B.T.

- 339 028792. The Baldacchini Villa: on the ridge known as Cisterne east of Monte S. Pietro stand the remains of a large Roman *villa rustica* called by the local name of Baldacchini or, in the last century, Bagni d'Agrippina (*Not. Scav.*, 1880, p. 378). It enjoyed a magnificent view down the Tiber valley towards the towns of Fiano and Passo Corese. The principal remain is a huge retaining wall in *opus reticulatum* on the southern side of the site, which is slowly being undermined by the erosion of the hillside below (fig. 2, pl. XX). It lies at an angle of 263°, is 36.5 m. long and reaches a maximum height of 7.8 m. Apart from the foundations (2.5 m.) it was constructed in three separate sections each 1.92 m. high and set back one above the other by two offsets, each of 15 cm. At 17.3 m. from the western end the upper layer was decorated by a niche, 0.95 m. wide and crowned by a brick arch. The *tuffelli* of the *opus reticulatum* are rather large being on the average 11 cm. square; the reticulate work shows signs of repairs on the eastern side. The lower section

of the wall was pierced by twelve drainage weep-holes (17 cm. wide) created by setting one curved tile on top of another.

6.05 m. from the eastern end of the wall stand the remains of an open circular tank, half of which has disappeared down the hillside. It has a diameter of 14.70 m. and the side wall of the tank (0.80 m. thick) stands to a height of 1.3 m. The ruin is definitely an open water tank and Ashby was quite correct in criticising Tomassetti's idea that the structure represents the remains of a rotunda (*Memorie*, p. 148). The tank, in fact, is reminiscent of those identified from air photographs of a large *villa rustica* close to the site of Pyrgi on the Via Aurelia (*PBSR*, xxv, 1957, p. 20, fig 2). The cellar of the house to the north incorporates the remains of a cistern, the plan of which is reproduced by Ashby (*Memorie*, fig. 9, p. 150). Another hut 150 m. to the west, on the edge of Cisterne, also overlies an ancient cistern but is not accessible.

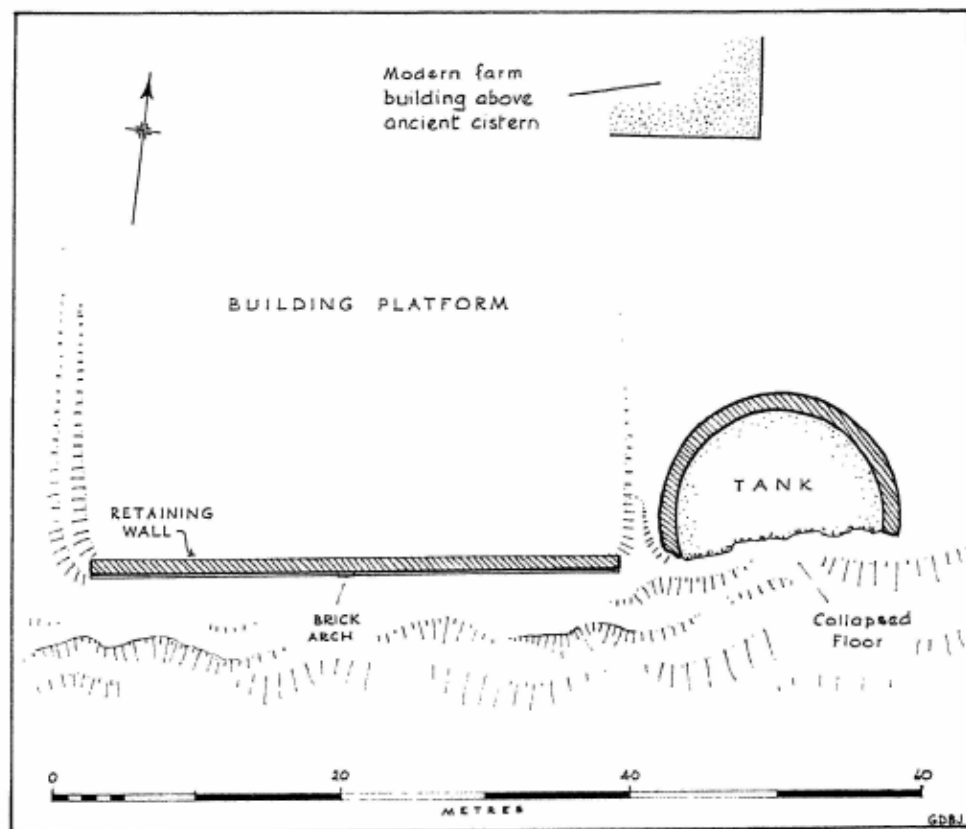


FIG. 2. THE BALDACCHINI VILLA: PLAN

- 340 044783. The Torrita Tiberina Villa: On the edge of the valley floor south-east of I Colli and easily recognisable from a passing train stands the second large *villa rustica* of the area. As is often the case, the building platform, not the building, has survived. It lies on a north-west south-east axis of 304° and was approximately 40 m. square. A section on the south-western side shows that the building went through two structural periods. The original building platform at that point stood 3.10 m. high and was constructed in courses of *opus incertum* (mainly composed of small *selce* blocks) that date this phase of the structure to the late Republican period. The wall, in fact, represents a miniature of the retaining wall of the Baldacchini villa (p. 110). It was built in three layers (c. 0.95 m., 1.25 m. and 1.05 m. high respectively) set back from one another by two offsets, each of 20 cm.

Later a series of square (4-10 m.) abutments was built against the retaining wall, presumably in an attempt to create extra building space above (fig. 3; pl. XXI, a). These supports were composed of rough *tuffelli* and mortar, but the best preserved example on the south-eastern side shows that they were faced with *opus reticulatum* which probably dates the alterations to the Julio-Claudian period.

Fallen fragments of masonry with *opus signinum* attached indicate the position of a cistern at the south-eastern corner, where a pavement of *opus sectile* has also been covered by collapsed masonry.

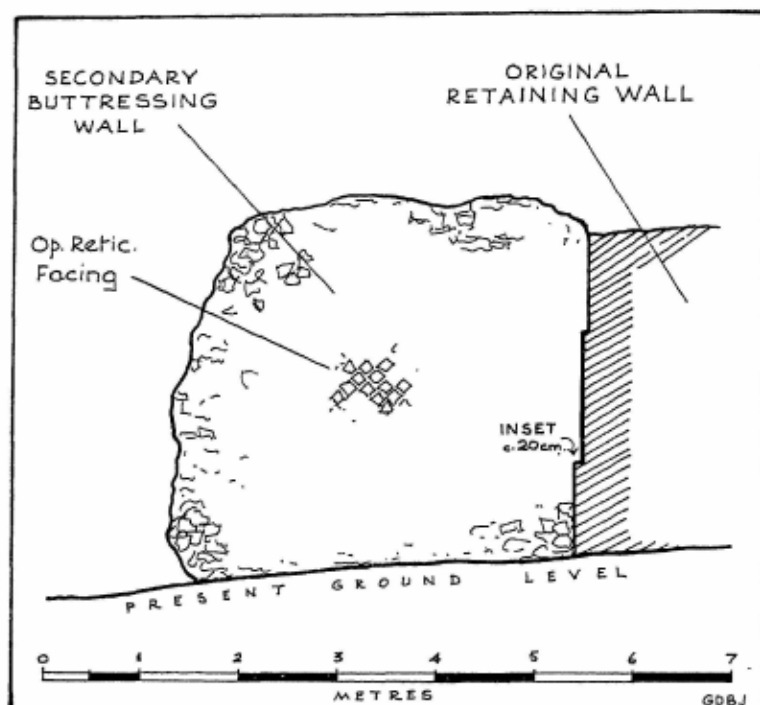


FIG. 3. THE TORRITA TIBERINA VILLA: SECTIONAL VIEW OF BUTTRESSING ON SOUTHERN SIDE

(I) *The Valle Feliciosa* (fig. 4; pl. XXII)

Much of the area under discussion in this section belongs more correctly to the Ager Faliscus; topographically, however, the area east of the Flaminia (which for convenience I shall call the Valle Feliciosa, after the central feature of the region) is best taken in conjunction with the north-eastern corner of the Ager Capenas round Badia (p. 104). It can only be understood as an area where, like the Ciminian Forest (*invia atque horrenda*),¹⁴ ancient settlement moving up the valleys was gradually penetrating the forest cover from north-west to south-east.¹⁵ Towards the F. Treia the ground was dotted with a fairly even distribution of quite substantial sites, one in fact large enough to merit its own *diverticulum* (343). To the south-east, under the northern side of M. Soracte, the size of the buildings

¹⁴ Livy, ix. 36. 1.

¹⁵ This process was first shown most effectively in the Ciminian Forest by G. C. Duncan in his survey of the Sutri area, *PBSR*, xxvi, 1958, p. 94, fig. 7.

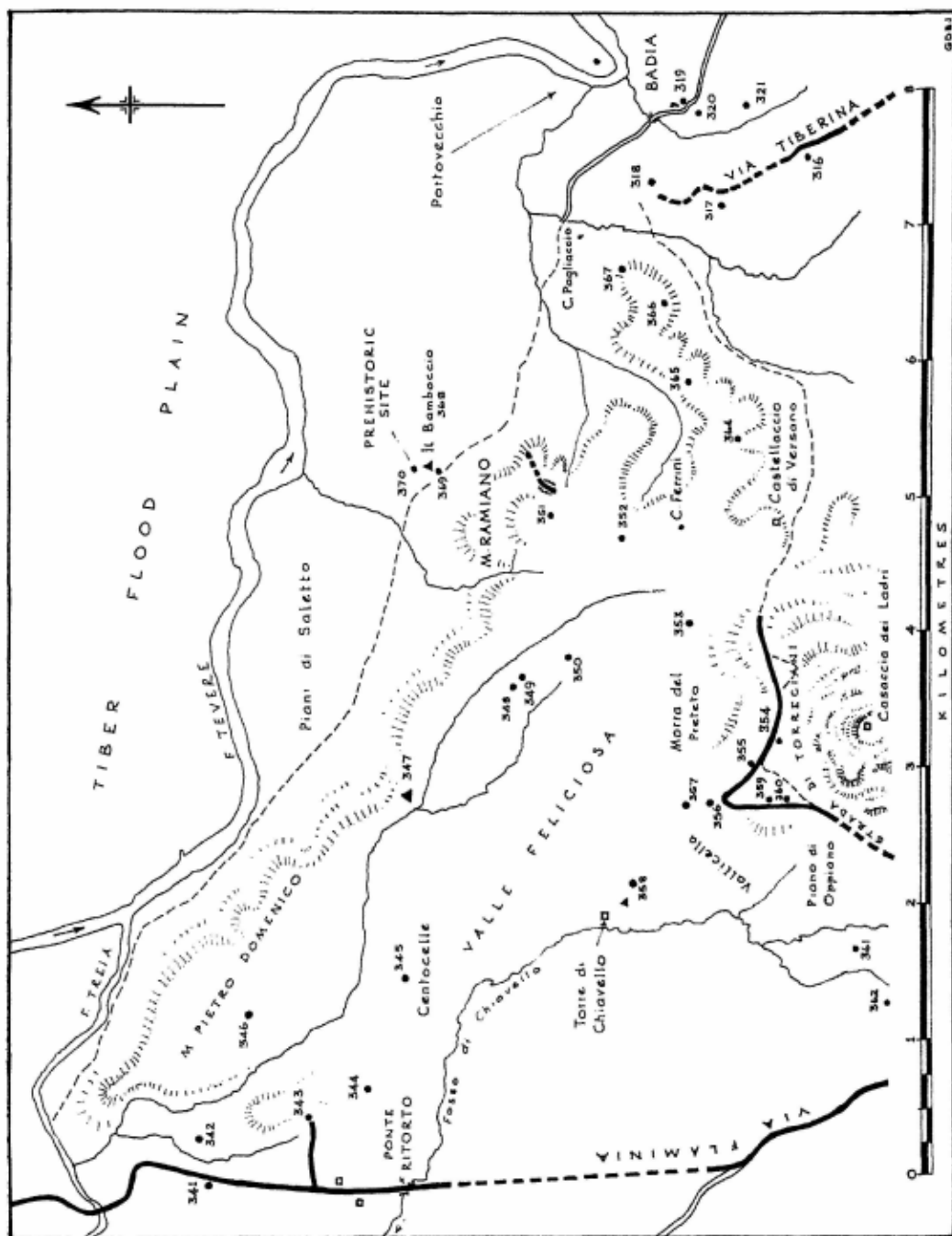


FIG. 4. THE VALLE FELICIOSA: GENERAL PLAN

dwindled from medium to small and from small to minute—a handful of coarse sherds or tiles that mark the site of a crude timber or wattle building reminiscent of the *capanne* still erected by *contadini* working far from their villages or by shepherds during transhumance. Their ancient occupants would probably have been engaged in charcoal burning or the pasturing of a mixed flock of sheep and goats.

At the northern end of the area the course of the Via Flaminia has already been described by Ashby and others and need not be repeated here.¹⁵ It crossed the Fosso di Grassano at the Ponte Ritorto¹⁶ and ran due north towards the well-known Treia viaduct (Muro del Peccato), past site 341. The adjacent ridge to the east was also occupied in antiquity (342). The Roman sites in the area were few but fairly substantial. The example a kilometre to the south (343) was large enough to have enjoyed its own *diverticulum* which ran due east from the Flaminia for six hundred metres. An interesting feature of the road is a retaining wall on the lower side of a small stream crossing; this is described in detail below. Only one indistinct nucleus (344) occurs in the one and a half kilometres to the next important site at Centocelle (345). Here the main feature of the remains is the massive rectangular cistern (18.8 m. by 8.6 m.) in *opus reticulatum* that has been converted into a farmhouse by the addition of an upper storey (fig. 5; pl. XXI, b). A stamped *bipedalis* of A.D. 125 was found in the area to the north of the cistern and it was on this side that the main nucleus of the site was found to lie. The area to the north beyond the Fosso della Ceppeta takes its name from the highest point, M. Pietro Domenico (165 m.). Despite its extent of nearly three square kilometres, only one ancient site could be located in the whole area, the remains of a medium-sized building on the eastern slope of the main ridge (346). Two kilometres to the south-east along the bluffs overlooking the Tiber valley stand the remains of a small Roman tomb core (347) measuring c. 3.2 m. by 4.1 m.; there is no sign of an associated site. The main basin of the Valle Feliciosa shown in pl. XXII yielded no trace of antiquity; the only indications lay on M. Cipriano, the northern rim of the area, where three tiny pockets of Roman material were located close to the modern farm track (348, 349, 350). To the east the southern end of M. Ramiano was occupied by a site of uncertain size (351) that was apparently connected with the floor of the Tiber valley by a *diverticulum* preserved as a cutting at 955835 (p. 119). Long search located only two further sites on this upland plateau. The first (352) lay on the eastern side of the track north of Casale Ferrini half a kilometre from the previous site. The other was a kilometre distant, near the Macchia Tonda at the south-eastern end of the Valle Feliciosa (353). The distance separating the various remains emphasises the sparsity of sites on the ground. The examples to the north close to the Flaminia are large and presumably the centres of substantial estates. Away from the road to the south-east the dwindling size of the nuclei and the complete absence of sites on what is now the fertile and well-watered Valle Feliciosa suggest that the area was not cultivated but covered by woodland, penetrated at only a few points in antiquity.

¹⁵ Ashby and Fell, 'The Via Flaminia', *JRS*, xi, 1921, p. 125 ff. cf. E. Martinori, *Via Flaminia*, 1929, p. 67 ff.

¹⁶ M. H. Ballance, 'The Bridges of the Via Flaminia', *PBSR*, xix (1951), p. 85.

- 341 904862. A medium-small site immediately to the west of the Via Flaminia beside the modern farm where the ancient road begins the descent to the Treia viaduct (Muro del Peccato). The remains were apparently seen by Ashby who marked the site as that of a cistern (*Memorie*, End Map).

Coarse ware; amph., B.T.

- 342 902963. Another site noted by Ashby on the ridge to the east of the Flaminia opposite site 341.

Coarse ware; amph., B.T., reticulate *tuffelli*.

- 343 910855. A major site occupying the crest of a ridge half a kilometre east-north-east of Torre del Pastore on the line of the Via Flaminia. The buildings lay to north and south of a *selce*-paved *diverticulum* that branched away from the Flaminia at Spot Height 151 m., two hundred metres north of the tower.

Terra sig. and coarse wares; dol., amph., B.T. Travertine doorsill, together with travertine and tufa ashlar; *selce* paving blocks.

The most interesting feature lies not on the site itself but along the *diverticulum*; in the valley 150 m. west of the site the approach road crosses a small unnamed stream running northwards into the Fosso Treia. In the wet season severe erosion could undermine the road and to prevent this the lower, northern side of the road was reinforced by a retaining wall in tufa ashlar. The details are difficult to recover in the dense undergrowth, but the wall itself was 5.26 m. long and set into the hillside on either side of the watercourse. Its average height measures c. 1.7 m., normally composed of five or six courses of tufa ashlar; individual blocks stand c. 27–30 cm. high, and were set in a further 0.8 m. of mortar rubble. Viewed in plan the last half metre on the eastern side lies at an angle of 6° further to the north than the main alignment (251°); a similar change may have occurred on the western side, but the details have been lost through the collapse of the wall face.

- 344 911849. Indications of a site obscured by thick grass on the brow of a hill 800 m. north-east of the Ponte Ritorto. Only coarse pottery observed.

Coarse ware; B.T.

- 345 919846. Centocelle: the ploughed out remains of a large and important site north of the farm known as Centocelle, one and a half kilometres east of Ponte Ritorto.

Red Polished and coarse wares; B.T. including one stamped tile (v. below).

The main feature of the site is the large rectangular cistern which has been preserved by its massive construction and converted into a farmhouse by the addition of an upper storey. This is not an uncommon phenomenon in the Campagna; there is an almost identical example at Casa Pantane beside the Via Clodia south-east of Barbarano.¹⁷ The building is set out along an east-west alignment of 295° and its external dimensions measure 18.80 m. by 8.60 m. (fig. 5; pl. XXI, b). The walls are 0.9 m. thick and the interior is partitioned into four chambers 3.91 m. long by 6.21 m. wide with barrel-vaulting at right angles to the axis of the building. They were interconnected by three narrow vaulted archways (1.54 m. wide and 4.4 m. high) forming in effect a central aisle running through the building, though the central partition wall has been blocked by modern filling. Access doors have also been cut through the east and west end walls for the cistern to serve as a stable and hen-coop. The exterior wall of the cistern was originally strengthened by twenty-two buttresses, seven along each of the long sides and four along the end walls. Only seven survive to any extent, but almost all are traceable as breaks in the reticulate face of the main walls. They are c. 0.75 m. wide and spaced at 2.45 m. intervals. Those at the north-western corner are masked by the construction of a flight of steps to serve the living quarters in the second storey that was superimposed on the cistern. The buttresses, the external and internal faces of the main walls and the partition walls up to the springing of the barrel-vault at 2.20 m. are all built in *opus reticulatum*; the average size of the reticulate *tuffelli* is c. 9.5 cm. and tufa (not brick) quoins were used exclusively. This combination of structural styles should date the building fairly certainly to the early Julio-Claudian period. A later addition to the structure can be seen at the south-western corner, where a brick wall was attached to a reticulate wall extending westwards from the end wall of the cistern. The purpose of the alterations is not clear, but a brickstamp of A.D. 125 found in the farm-yard to the north may belong to the same work and so date the additions to the end of the first quarter of the second century.

¹⁷ A. Boethius and others, *Etruscan Culture: Land and People*, fig. 151, p. 174 (cf. fig. 155 for the adaptation of a barrel-vaulted cistern).

The stamped *bipedalis* in question was uncovered by chance in the yard on the north side of the cistern. It belongs to a series from the year A.D. 125 (*CIL*, XV, 1209b):

OPUS DOL EX P C IULI STEPHANI
ASIAT II ET AQUIL COS.

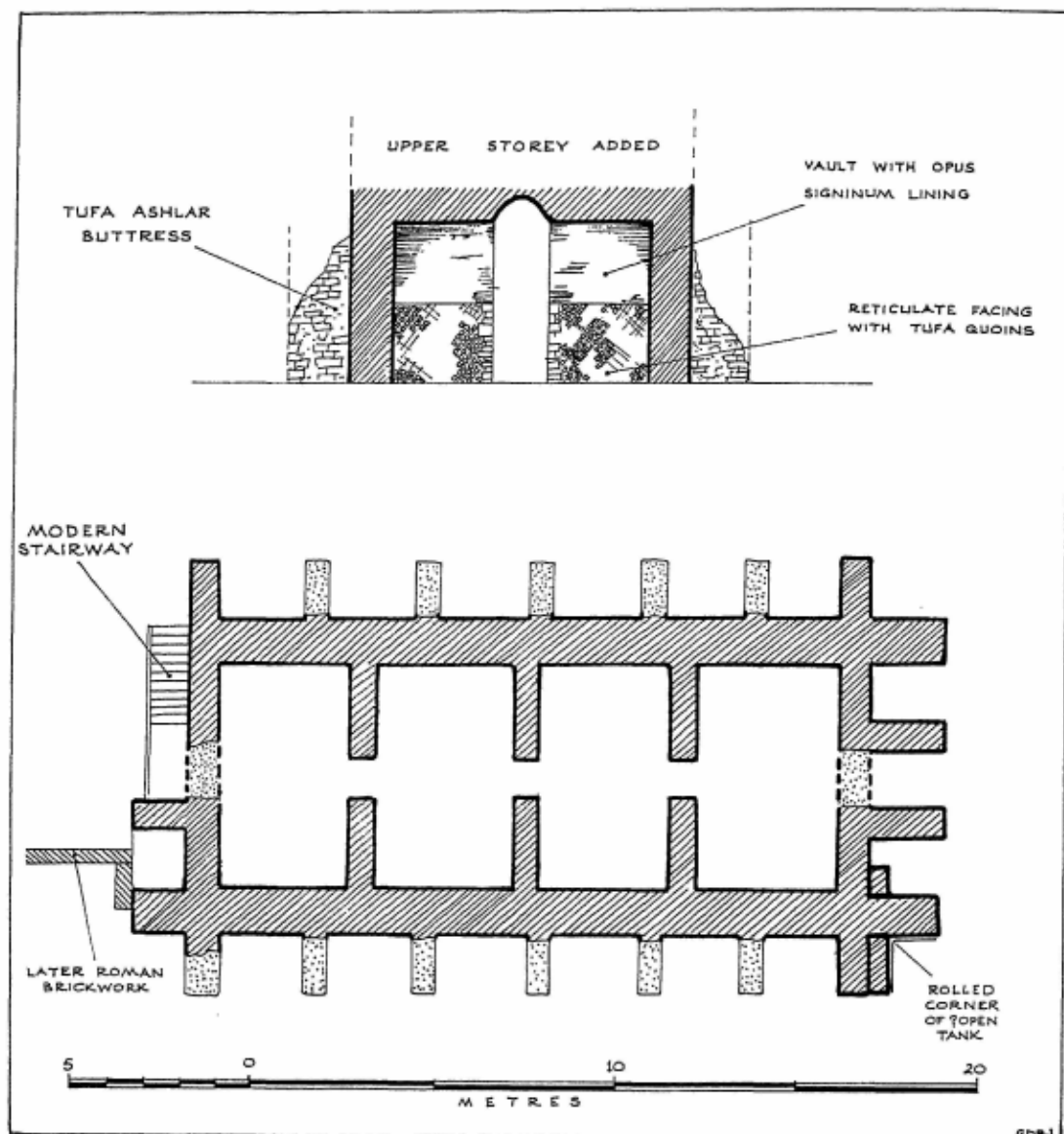


FIG. 5. CENTOCELLE: PLAN OF ROMAN CISTERN

346 917858. The remains of a medium-sized building on the eastern slope of M. Pietro Domenico.

Coarse ware, B.T.; tufa and travertine blocks.

- 347 933846. A Roman tomb core noticed by Ashby (*Memorie*, End Map) on the ridge crest overlooking the Coste di Saletto and the Tiber Valley at Piani di Saletto. In its original form it measured c. 3.20 m. by 4.10 m. and its west-east axis lay at an angle of 117°. The core is built of fist-sized limestone blocks set in light mortar. There is no indication of any associated site.
- 348 941837. A very small pocket of Roman tile beside the modern trackway at the southern end of M. Cipriano.
Roman tile.
- 349 942836. Another pocket of tile fifty metres from the site described above (348).
Roman tile.
- 350 943832. A third pocket south-east of the modern track at the southern end of M. Cipriano.
Coarse ware (1 sherd); tile.
- 351 954833. A site of uncertain size on the spur at the southern end of M. Ramiano. It was connected with the floor of the Tiber valley by a track preserved as a cutting (c. 4 m. wide) at 955835 (p. 119), immediately under the crest of the hilltop.
Coarse ware, amph., B.T.
- 352 952824. A small scatter of Roman coarse ware on the eastern side of the modern trackway due north of Casale Ferrini.
Coarse ware.
- 353 945824. The well-defined nucleus of a small site east of the Macchia Tonda, at the southern end of the Valle Feliciosa.
1 coarse ware sherd; tile.

Due west of Badia settlement was focused on an ancient road unexpectedly found to run round the dense woodland of the northern tip of Soracte. Its discovery emphasised the importance of the Tiber crossing at Badia as a link between northern Sabinum and the Ager Faliscus and the Ager Capenas. The road can only be traced for part of its course and its junction with the Flaminia system is lost; its function would have been to connect the region round the Sabine site of Forum Novum (Vescovile, north of Selci) with either of the two Falerii, Narce and the north-western Ager Capenas in the vicinity of Rignano Flaminio. Moreover, three sites along its course yielded Etruscan pottery (354, 359, 360) and this strongly suggests that the road itself is of pre-Roman origin. In antiquity the scrub woodland which it traversed was probably even denser than it is today; unless one has actually had to negotiate them on foot, it is not easy to imagine the difficulties of these *saltus impeditos* which Livy reckons among the worst of natural obstacles.¹⁸ This gives the ancient route a character of its own; most of the sites lie within fifty metres of the track and probably occupied small roadside clearings.

It is unfortunate that the eastern section of this road is completely lost. It probably climbed from Badia along the northern bank of the Fosso dell'Arboretaccio (close to site 323) and its small tributary the Fosso di Versano, close to the medieval site of Castellaccio di Versano. The subsoil of this section consists of such soft and eroded clays that all trace of a road would long have disappeared. The traceable section of the route occurs in the central section at the northern end of the mountain. From the northern summit of the mountain the area below can be seen as though in an oblique air photograph and it becomes apparent that the Strada di Torreciani incorporates elements of an earlier road. The name is given to a trackway that skirts the northern flank of the mountain from the Versano area to the Piano di Oppiano. At the head of the Macchia Tonda the present

¹⁸ ix. 36.9. of the M. Cimini.

route negotiates a re-entrant in a V-shaped detour but there are traces of an earlier route following a more direct course towards the next section of the track beside an extensive scatter of pre-Roman material (354). Three hundred metres further on the most important Roman site on the route occupies a ledge on the spur above Morra del Preteto (355). The modern track turns sharply south-west at this point, but the ancient route followed the nose of the ridge down to the Morra del Preteto, where two small Roman sites (356, 357) lie close to a medieval redoubt. Another medieval building, the Torre di Chiavello, lies half a kilometre to the north-west with a small Roman cistern nearby (358). The road, however, turned south-west and climbed the ridge of Vallicella. On the upper slope one small (359) and one medium (360) Etruscan site show that the road itself was almost certainly pre-Roman in origin. A slight road cutting is visible at this point but all trace of antiquity soon disappears because it then coincides with a sunken lane dropping down to the Fosso Cantalamessa, only half a kilometre from the course of the Via Flaminia. No trace of the final section could be found, but a Roman site (361) was located on the ridge opposite the Piano di Oppiano and another two (362, 363) on the western bank of the Fosso Cantalamessa.

- 354 936817. An important nucleus of pre-Roman material on the upper side of the Strada di Torreciani. Erosion has spread the pottery over a considerable area. Taken with the material from sites 359 and 360, the Etruscan date of the finds strongly suggests that the road is of pre-Roman origin.

A large quantity of Etruscan coarse ware, B.T.

- 355 934818. The most important Roman site along the road at the point where the Strada dei Torreciani traverses the lower projection of the main northern ridge of M. Soracte. Much of the remains have been washed downhill by erosion but the site contained an unusually wide selection of coarse ware.

Terra sig., Red Polished and a large variety of coarse wares; amph., B.T.

- 356 932822. A small Roman nucleus at the southern end of the Morra del Preteto below site 355.

Roman coarse ware, B.T.; a few medieval sherds.

- 357 932824. Another small Roman site on the Morra del Preteto south of the small medieval stronghold at 931825.

A little Roman coarse ware, B.T.

- 358 926828. A Roman site marked by the ruins of a cistern beside a modern track 150 m. south-east of Torre di Chiavello. Several fragments of the limestone cistern walls are preserved a few metres from the track.

Coarse ware; B.T.

- 359 931817. A small pre-Roman site on the slope of Vallicella; it must have been closely associated with the larger pre-Roman site (360) higher up the ridge.

Etruscan coarse impasto ware, B.T.

- 360 931816. A substantial Etruscan site on the upper slope of the Vallicella ridge 80 m. above site 359.

Bucchero ware; coarse impasto ware; a terracotta cooking stand (upper fragment) with air holes and inturned lugs on rim (cf. above, p. 68, fig. 24); B.T.

- 361 920812. A small Roman site on the elongated ridge east of the Piano di Oppiano.

Coarse ware, B.T.

- 362 917809. A small Roman site close to a modern farm on the ridge north of Mazzoneta.

Coarse ware, amph., B.T.

- 363 920805. A medium-sized Roman site on the ridge to the west of the Fosso Cantalamessa.

Red Polished and coarse wares; amph., coarse black tesserae; tufa ashlar, B.T.

In a previous section the descent of the Via Tiberina into the Tiber valley has been traced to the area between Badia (S. Andrea in Flumine) and the Fosso Calva (p. 104). Upstream the river valley appears in section as a flat floor one

and a half to two kilometres wide with low bluffs on either side. The outstanding archaeological problem of the area concerns the continuation of the Via Tiberina; no trace has ever been noted, and none is likely to be found without the help of a lucky discovery because eroded material from the tributary valleys must have raised the Tiber flood plain far above its Roman level. There are also comparatively few sites. Four sites (364, 365, 366, 367) occupied the first ridge to the west; they lie along the crest of the Casale Riccioni spur, which descends from the Valle Feliciosa to the valley floor at Casale Pagliaccio (974830). On the valley floor proper, however, there is only one group of remains. This lies one and a half kilometres upstream beside the Roman tomb core known by the local name of il Bamboccio (368); the tomb was associated with a very eroded site (369). On the eastern crest of M. Ramiano overlooking il Bamboccio can be seen the upper section of a cutting (c. 4 m. wide), noted by Pasqui, which probably served to connect the nearby site (351) with the valley floor. From the tomb there remain three and a half kilometres to the confluence of the Treia and the Tiber. The modern footpath follows the logical course on the edge of the valley floor below the line of bluffs to the west. Neither Pasqui nor Ashby was able to discover any traces of antiquity in this section until the remains of a bridge at the mouth of the Treia, which was apparently seen by Pasqui and subsequently destroyed by flooding. The road is then assumed to have continued north-westwards to a Tiber crossing at Borghetto but this must remain hypothetical with the present paucity of evidence.¹⁹

364 959819. A general scatter from a site on the ridge crest half a kilometre east of Casale Riccioni.

Red Polished and coarse wares; B.T.

365 963823. An extensive scatter of pottery and building material from a site on the ridge crest overlooking the Fosso dell' Arboretaccio.

Red Polished and coarse wares; B.T.

366 969825. The remains of a rectangular building apparently overlying an ancient site.

Roman coarse ware.

367 972827. A heavy scatter of Roman material on the ridge crest overlooking Casale Pagliaccio on the north-eastern tip of the Casale Riccioni ridge.

Coarse ware; B.T.

368 957843. Il Bamboccio: a Roman tomb core in limestone chips and dark grey mortar. The monument, which was heavily eroded at the base, measured approximately 3 m. by 4 m. and reached a height of c. 2.5 m. It was destroyed in April 1961.

369 957842. The very eroded remains of a Roman site associated with the tomb core described above.

Coarse ware; B.T.

The important prehistoric site (370) found close to il Bamboccio during the construction of the Autostrada del Sole is described separately in the next section (p. 119).

The most fortuitous and unexpected discovery in the whole survey of the Ager Capenas was the location (in April 1961) of a prehistoric site related to Trump's phase E (see note 21) of the Appennine culture seven metres below ground level at the foot of the northern slope of M. Ramiano (Site 370, 955844; fig. 6; pl. XXIII). It was only made possible by the construction of the Autostrada del Sole, which emerges on to the floor of the Tiber valley at Badia west of Ponzano (p. 104) and runs north-westwards to a Tiber crossing opposite the mouth of the Treia. In

¹⁹ For further discussion v. Ashby, *Memorie*, p. 152.

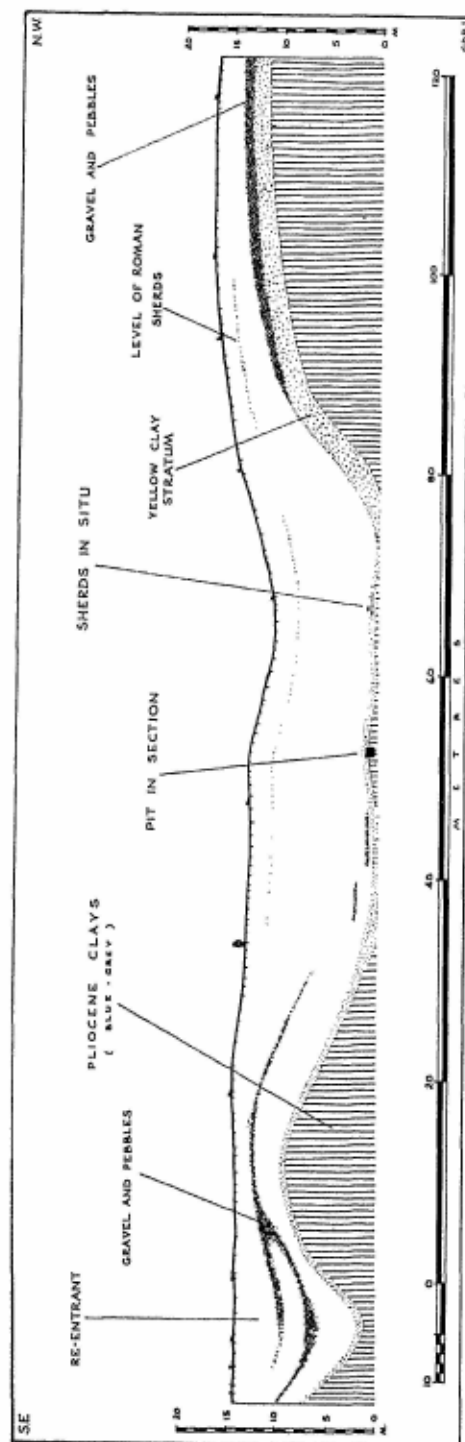


FIG. 76. M. RAMIANO : SECTION ACROSS PREHISTORIC SITE

doing so it has to cross a narrow spit of land projecting into the valley floor below M. Ramiano (pl. XXIII, a). The curve on the north-western side of the projecting spit was probably shaped by a loop in the ancient course of the Tiber, which now meanders on the far northern side of the valley. To eliminate any gradient in the road this neck of land was pierced by a huge cutting, c. 30 m. wide and as much as 22 m. deep, running at an angle of 295°. Forty metres north of the Roman tomb core known as il Bamboccio (368) the mechanical graders uncovered and quickly destroyed a small (c. 60 m. wide) prehistoric site buried beneath seven metres of silted deposits. Two features, however, an artificial layer of stones and a small pit, survived in section along the southern face of the cutting. The choice of position was probably due to a fresh-water spring sixty metres to the north-west and perhaps, as suggested above, the proximity of the Tiber at the time.

Pl. XXIII, a shows the original topographical position of the site. It lay in the deep hollow separating two shoulders of blue-grey clay, each nearly eleven metres high (fig. 6). Further to the south-east a narrow re-entrant appears in section. A thin (1-2 m.) stratum of yellow clay overlay the blue-grey levels throughout and it was on this that the prehistoric material rested. The seven metres of silted deposits that covered the site served to fill the hollow and give the present ground level a fairly smooth profile, from which it would be impossible to guess the underlying geological strata.

The immediate problem concerned the geological character of the underlying blue-grey clay. Samples submitted to the Geological Institute at Rome left no doubt, on the basis of fossil remains, that this substratum belonged to the pliocene period. The fossils identified were all marine: *Amussium cristatum* Bronn, *Chlamys varia* Linn, *Pecten Jacobaeus* Linn, *Cardium* and *Venus*. This firmly established that the blue-grey levels were pre-quadernary and unrelated to lake deposits of the pleistocene period. The sherds, however, did not rest directly on these pliocene clays. The pottery found *in situ* within the small artificial layer of stones rests on the thin stratum of yellow clay overlying the blue-grey strata. The yellow stratum was found to consist mainly of pliocene sediments and is to be interpreted as the ground level at the time the site was occupied. The various strata of gravels and river pebbles represent later stages in the slow process of deposition which in the central section reaches the formidable depth of 6.7 m. The depth of stray Roman sherds is limited to a layer between two and three metres below the present ground level, but it is worth remembering that the Roman tomb core of il Bamboccio forty metres away stands on the present ground level.

Almost all the pottery available was collected from the floor of the cutting where the mechanical graders had spread it. The only two identifiable features survived in the southern face of the cutting (fig. 6) between the two shoulders of pliocene clay. The first was an artificial layer of stone and gravel extending over a distance of c. 2.3 m. at a height of 1.2 m. above the level of the floor of the cutting. A few very worn sherds were found *in situ* among the stones. 14.4 m. away from this feature a pit was identified in section in the side of the cutting; its lower half had been cut into the blue-grey pliocene clays where its shape appeared as a fairly regular U with a width of 1.10 m. and a height of at least 0.9 m. It was filled with a deposit of earth, silted earth and gravel and small pieces of wood

(av. thickness 2-3 cm.) preserved by the dampness of the soil. One fragment showed that it had been cut by an axe-like implement but the matter was too decayed to indicate whether these timbers originally formed a lining for the pit.

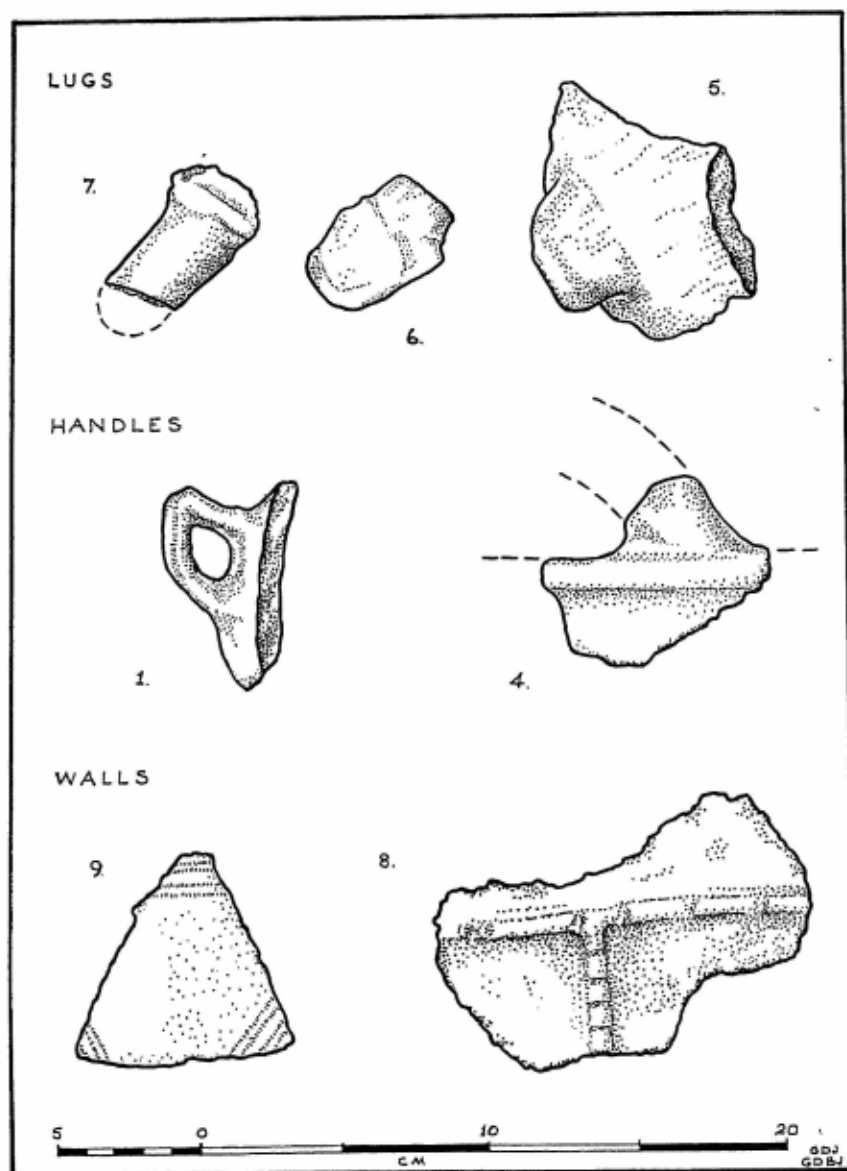


FIG. 7. M. RAMIANO: POTTERY FROM THE SITE

One sherd, a vertical loop handle (No. 4, v. below), was found in the lower section of the pit; a lichen growth on part of its upper side suggests that it must have been exposed to the air in the pit for some time before being completely covered.

None of the sherds collected from the site are wheel-turned; a few are burnished. Few of the shapes can be recognised but they include jars and carinated bowls, as well as vessels with plain or finger-impressed cordons and indented lugs. Generally speaking the material is close in character to that of such late Appennine (Phase E) sites in Lazio as Pian Sultano, Formello and the Grotte Falische.²⁰ Altogether forty-two recognisable fragments of pottery were found. Most of these are small pieces of wall in reddish-brown ware whose highly fragmentary state does not warrant individual description here. Seventeen sherds, however, form recognisable elements and are described below. With the exception of No. 4 (discovered in the pit) none was found in any stratigraphic context. Some of the more interesting pieces (1, 4, 5, 6, 7, 8 and 9) are drawn in fig. 7; these and other fragments are illustrated in pl. XXIII, *b, c*.

Handles:

1. Handle with flat-sided loops brought into an upward-facing point. The type is similar to that illustrated in *Mon. Ant.*, xxvi, 1920, col. 70, fig. 20, which shows a handle from the Cava dell' Acqua in the Grotte Falische.
2. Upper section of a pointed handle, as 1.
3. Upper section of a pointed handle, as 1 and 2.
4. Rim fragment with right-hand base of a vertical loop handle, a type particularly associated with Trump's Appennine phase E. The fragment was found in the lower section of the pit; a lichen-like growth on part of the upper side shows that it was exposed to the air for some time before being completely covered.

Lugs:

5. Lug handle inserted into fragment of vessel wall. This feature, common in Appennine wares, is associated with some Italian Neolithic groups and is found as late as the Villanovan period.
6. Lug handle showing plug for insertion in vessel wall.
7. Lug handle with fractured plug and outer end.

Decorated Walls:

8. Wall of a large storage vessel with a vertical finger-impressed cordon linked to a similar horizontal one. In Italian contexts this decorative motif appears in very early Neolithic types and continues as late as the early Etruscan period.
9. Shoulder of a black vessel decorated with three sets of parallel flutes, forming a triangle. This is typologically the latest piece represented.
10. Everted rim of a reddish-brown vessel with pendent cordon.
11. Rim of a similar vessel with left-centre cordon fragment.
12. Wall fragment in light brown ware with finger-impressed pendent cordon.
13. Rim of dark red ware with pie-crust indentations and left central section of pendent cordon.
14. Similar rim of dark red ware with pie-crust indentation.
15. Wall of a vessel in reddish-brown ware with projecting boss.
16. Wall fragment of a dark-red vessel with finger-impressed pendent cordon.
17. Base and wall fragment of a shallow bowl in dark-red ware. Not illustrated.

A cut flint with a prepared striking platform was also found.

The pottery can only be dated in fairly general terms. The close similarity of the material to the so-called Bronze Age sites of the neighbourhood supports Trump's view that the 'Appennine' pottery found in Latium represents a more

²⁰ For Pian Sultano, v. *Bulletino di Paleontologia Italiana*, N.S.X., 1956, p. 157 ff. The site at Formello, discovered in 1957, will be published in the report on the Ager Veientanus in a forthcoming volume of the Papers. For the Grotte Falische, v. *Mon. Ant.*, xxvi, 1920, col. 5 ff. A newly discovered Faliscan site was described by D. Trump in *PBSR*, xxv, 1957, p. 95.

pronounced statement of earlier Bronze Age traditions (*PPS*, xxiv, 1958, p. 175). The finds bear closest similarities to material from a late phase of the Appennine

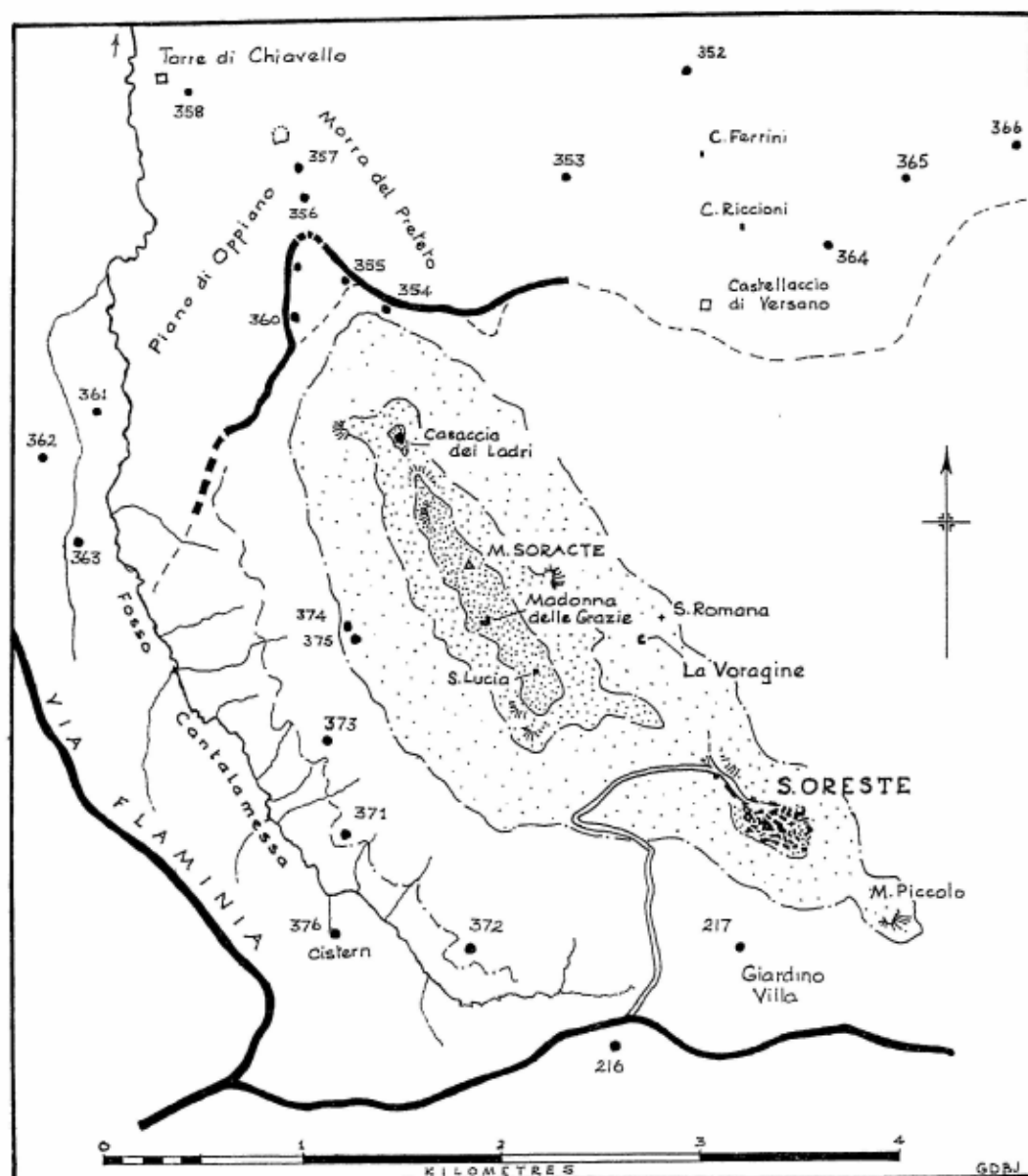


FIG. 8. M. SORACTE: GENERAL PLAN

culture (Trump's Phase E; see note 21). The grooved ware exemplified by No. 9, for instance, appears in the Appennine Bronze Age from the 'terramare' culture

in the 12th century B.C. at the earliest. The M. Ramiano site probably belongs to the beginning of the first millennium.²¹

*Geologically the significant feature of the discovery is that it provides something of a time scale for the rate at which eroded material has been deposited at the edge of the Tiber valley floor. The difference between edge and floor is important; in the latter the rate at which silted matter was deposited must have been higher than on the lower slopes. Lower down the Tiber valley, for instance, beside km. 14.7 of the Via Tiberina the construction of a deep drainage culvert for the Autostrada del Sole involved the excavation of the subsoil to a depth of c. 5 m. It consisted entirely of silted soil and vegetable matter; despite the proximity of the ancient Via Tiberina and several sites (69, 101) on the adjacent ridges, no Roman material was found and this probably implies that it lies at a still deeper level. On the edge of the valley floor at M. Ramiano the accumulation was a slower process. Stray Roman sherds appear at a depth of 2-3 m. below present ground level. The interesting point is that the prehistoric pottery levels occur at such a depth. The sherds associated with the artificial layer of stones resting on the ancient ground level lie 6.7 m. below the present ground level, while the loop handle buried in the pit lay at a depth of 7.7 m.

(m) *M. Soracte* (fig. 8; pl. XXIV, a)

The northern Ager Capenas is a complicated topographical unit whose broken contours reflect great geological changes, varying from the limestone of Soracte to the heavily eroded pliocene clays of the Tiber valley. Soracte dominates the whole scene; the main ridge, extending from the church of S. Lucia to the medieval redoubt known as Casaccia dei Ladri, is over two kilometres long and reaches a height of 691 m. at the monastery of S. Silvestro, which occupies the summit of the mountain. Its striking effect stems from its geological character; it forms an isolated outlier of the main tertiary limestones of the Appennine system. Though not of any great height, the bold way in which it rises above the broken tufa hills of the surrounding countryside makes it a conspicuous feature in views of the Roman Campagna (pl. XXIV, a). After Horace, Byron has best caught the pervading atmosphere of the mountain:

The lone Soracte's height displayed
Not now in snow, which asks the lyric Roman's aid
For our remembrance, and from out the plain
Heaves like a long-swept wave about to break.²²

So striking a feature of the landscape was a natural centre for the religious and mythological associations of the area. The mountain was primarily associated with Apollo Soranus (strangely linked with Dispatēr) whose cult was apparently

²¹ I am particularly grateful for help in this and the preceding section from Dr. F. R. Hodson and from Dr. D. Trump, the author of one of the two recent general studies of the Appennine culture (*Proceedings of the Prehistoric Society*, xxiv (1958), p. 64 ff. The other by S. Puglisi appears in his book, *La Civiltà Appenninica*, published by Sansoni (Firenze) in 1958.

²² *Childe Harold*, 4, 76. cf. Horace, *Odes*, i, 9, 1, *vides ut alta stet nive candidum Soracte*. Snow is in fact a very rare occurrence on Soracte; the mountain has matched Horace's description only once (1947) in recent years.

celebrated in a shrine on the summit, probably near the spot now occupied by the monastery of S. Silvestro. He was worshipped with special rites; his priests, the *Hirpi*, were able to pass unharmed through fire and this accomplishment earned them exemption from military service.²³ The feat was perhaps achieved with the help of alum.²⁴ The origin of the *Hirpi* is described by Servius. Shepherds were once making a sacrifice on the mountain when wolves suddenly seized the offerings and raced off across the rocky slopes. The shepherds followed and were brought to a cave whose mephitic vapours created a pestilence as punishment for following the wolves. To expiate their sin the *Hirpi*, as they came to be called, were told to live like wolves themselves—by rapine.²⁵

Apollo, the deity of the mountain, was at first probably the god of a pastoral community; as at the Lupercal on the Palatine,²⁶ he appears as patron of the rites by which the shepherds attempted to rid their flocks from the danger of wolves. There are parallels in the Arcadian cult of Apollo Lykeios and the aitiological stories of Delphi. On Soracte it was in following wolves that the shepherds were first brought to the cave whose vapours produced a pestilence; at Delphi goats led the shepherds to the oracular cave. In both cases the animal that acted as guide, whether favourable or not, played a part in the early form of the cult. The savage character of the cult on Soracte is emphasised by the divine injunction to live like wolves. The *pastores* became the *Hirpi Sorani*; they were, in effect, the *Luperci* of the Faliscan area. The strange fact is, however, that *hirpi* was the equivalent of *lupi* not in the Faliscan but in the Sabine dialect, suggesting that Sabine Shepherds were concerned with the cult;²⁷ the Tiber crossing at Badia offers quick access to the Soracte area and transhumance is not an impossibility even in this remote period.²⁸

The intriguing feature of the wolf legend as recorded by Servius is that the pestiferous cave can be identified with some confidence as a series of fissures known locally as La Voragine above the little church of S. Romana on the eastern side of the mountain. It lies in an area recently incorporated in a lime quarry and a partial collapse of the mountainside has rendered the fissures more accessible than ever before. They consist of three cave-like passages running into the mountainside (pl. XXIV, b) which are now partly choked with mud. The rock above is too unstable to allow exploration to any distance. There is no similar phenomenon to be found anywhere else on Soracte and, in any case, the presence of such a fissure in a tertiary limestone series is something of a rarity. A yellow deposit on rocks inside the fissures attests the presence of some kind of sulphuric gas at an earlier period; this, therefore, may well lend a factual basis to the legend.

To judge from the scattered ancient literary references one would think of the mountain as a desolate area, the preserve of Dispat, wolves and wild goats

²³ Pliny, *N. H.* VII. 19. Strabo also records the cult and describes it as belonging *τῷ δαίμονι*, I. 226.

²⁴ So Varro: see Serv., in Aen., xi, 787.

²⁵ Serv. in Aen., xi, 785.

²⁶ Ovid, *Fast.* 1, 2, 267 ff. (v. Frazer's commentary). The deity in question at the Lupercal was either Faunus or Inuus, a little-known fertility god.

²⁷ *nam lupi Sabinorum lingua vocantur hirpi*. Serv., *loc. cit.* cf. P-Festus 93 L (106 M): *Irpini appellati nomine lupi, quem irpum dicunt Samnites; eum enim ducem secuti agros occupaverunt*.

²⁸ For recent discussions of the subject v. J. Hubaux, *Rome et Veïes*, Chap. ix, p. 286 ff. ('Les Loups du Soracte'); M. J. Gagé, *Apollon Romain*, p. 84 ff.

capable of leaping sixty feet at a bound.²⁹ The impression was strengthened by the antiquarians of the last century. When Dennis passed through the area, the scrub woodland that covered Soracte extended beyond the Flaminia and attacks on travellers by wolves were not uncommon occurrences.³⁰ Yet it is only the eastern side of the mountain that is really inhospitable; it passes into deep shadow soon after midday and it was on that side that Servius' pestiferous cave was located. By way of contrast on the western slopes the last twenty years have seen the clearance of the scrub cover to the foot of the main ridge slope and there is perfectly valid evidence to show that the same amount of clearance had probably taken place during the Roman period (fig. 6). A string of sites lies along the eastern side of the Fosso Cantalamessa at approximately the level of modern clearance (sites 371, 372, 373); two, in fact, occupy an even higher level (374, 375), while the remains of a small cistern (376) lie beside a western tributary of the Fosso Cantalamessa. Taken in conjunction with the two roads at either end of Soracte and the Giardino villa (217) on the slope beneath S. Oreste, they show that the western mountainside was cultivated in antiquity to a level that has only been reached again in the last few years.

- 371 933789. A substantial site ploughed out beneath the south-western slope of Soracte. Quantities of coarse wares; dol., tufa ashlar, curved tile, B.T.
- 372 939783. Another large site ploughed out beneath the south-western slope of Soracte. Little pottery available.
Coarse wares, B.T. Fragments of a pavement in limestone blocks, including one section *in situ* measuring approx. 2 m. by 1.5 m.
- 373 933794. A site first noticed by Ashby on the slope of Vallengara overlooking Fontane Nuove (*Memorie*, End Map).
Coarse ware; B.T.
- 374 933799. The first of two closely associated Etruscan sites on the upper slope of Vallengara. A variety of impasto coarse wares, B.T.
- 375 934798. The second of the pair of associated Etruscan sites.
Impasto coarse wares, B.T.
- 376 933785. The remains of a Roman cistern in limestone chips and mortar beside a western tributary of the Fosso Cantalamessa half a kilometre above Fontane Nuove. The floor and upper wall of the structure survive in position. The former is 35 cm. thick and 3.6 m. long; the latter is 0.48 m. wide and is traceable for 5.7 m. The rest of the cistern has been washed away by stream action.

V. THE DEVELOPMENT OF SETTLEMENT

Etruscan settlement was based on the *pagus*.³¹ Five such sites occupying topographically similar positions on the end of spurs have been identified in the Ager Capenas. Capena itself was basically a large *pagus*. The others were at Fontanile di Vacchereccia (49), Grotta Colonna A (66), Nazzano (later the site of the 'civitas Sepernatium' p. 107) and the small Faliscan settlement south of Badia (323). The settlement at Rignano Flaminio should probably be added to this list (Pt. I p. 168).³² With the addition of the other Etruscan sites that were located the overall picture of Etruscan settlement is given in fig. 9; the evidence for the

²⁹ Varro, *R. R.*, ii. 3. 3.

³⁰ G. Dennis, *The Cities and Cemeteries of Etruria*, i, p. 134.

³¹ S. Mazzarino, 'Sociologia del Mondo Etrusco e Problemi della Tarda Etruscità', *Historia*, vi, 1957, pp. 98-122.

³² Lucus Feroniae existed during this period but its character differed from that of other settlements (Pt. I, pp. 189-197).

existence of roads in this period has already been given in Pt. I, 127. Naturally the picture cannot be regarded as complete—Etruscan sites rarely leave much trace on the ground—but it is probably fairly representative. Altogether forty individual sites were recognised, mainly from the presence of impasto wares (found

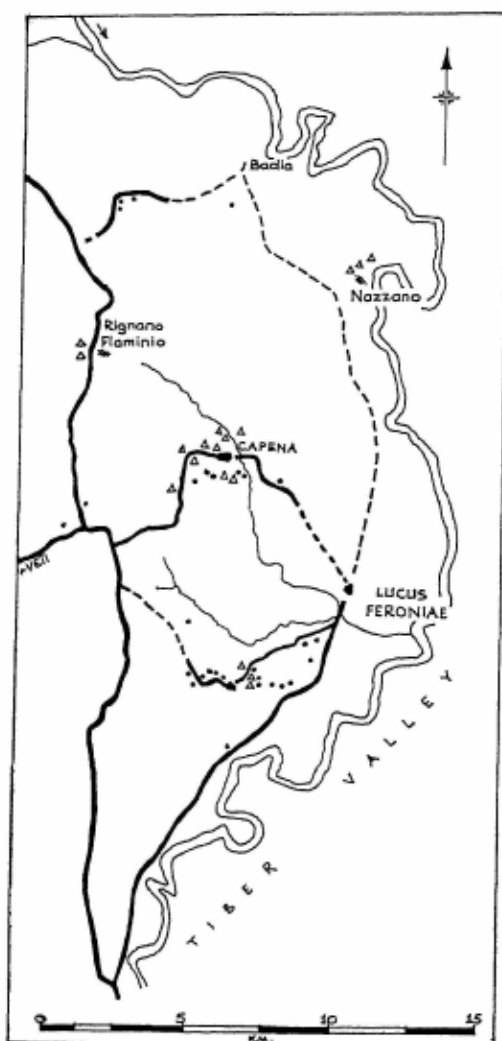


FIG. 9. THE AGER CAPENAS: DISTRIBUTION OF ETRUSCAN POTTERY

on thirty-three sites). Only fourteen sites yielded bucchero pottery³³ and this absence of finer wares suggests the relative remoteness of the Ager Capenas from the main stream of Etruscan influence. The point is made again by the paucity of Etrusco-Corinthian painted wares, a variety of pottery almost certain to have

³³ 8, 15, 17, 49, 50, 52, 53, 57, 58, 59, 60, 62, 120, 122,

been imported into the region. It was found on only five sites, all close to Capena or Fontanile di Vacchereccia.⁸⁴

The map of the Etruscan period shows how restricted settlement was at the time. It is worth re-emphasising to the modern reader how effective a barrier to expansion was presented by the dense scrubland⁸⁵ (normally of holm oak and thorn undergrowth) of which even today large areas survive in the Ager Capenas.⁸⁶ The achievement of the Roman period lay in the opening up of the countryside in general, a process involving the gradual decentralisation of nucleated Etruscan settlements in which a premium had been placed on the simple factor of defensibility. The M. Palombo area, in particular, shows how great a change was brought about by the stability of a central authority (Pt. I, pp. 150–65). When this happened is a question to which there is no simple, overall answer. In the southern and central Ager Capenas the main expansion demonstrably took place in the Republican period. This was clearly suggested by the small *pagus* at Grotta Colonna A (66) where bucchero and black-glazed wares show occupation in the Etruscan and Republican periods; the complete absence of later Roman wares, however, indicated that the site had remained unoccupied until its re-use in the medieval period (*ibid.*, pp. 160, 164). Settlement from this site and that at Fontanile di Vacchereccia (49) moved for the most part on to the ridges of M. Palombo and, with the help of several sherds of black-glazed ware, it was possible to date the *terminus post quem* of some sites more precisely within the Republican period (fig. 10). At site 96 a bowl with an incurved rim was found similar to Cosa Type A 21. This form disappeared at Cosa in the mid-second century and belongs to the period 225–150 B.C. A fragment of Cosa Type C.19 at site 98 also dates from the mid-second century while part of a large bowl with a ribbon band rim from site 60 exemplifies Cosa Type A.31 and probably belongs to the same period.⁸⁷ Allowing for the conservative tradition of Capenate pottery,⁸⁸ these dated fragments suggest that much of the M. Palombo ridge was settled towards the end of the second century. This conclusion seems generally applicable to the area immediately to the north forming the central Ager Capenas. Around Capena a fragment of Cosa Type A.21 dated site 197 to the period 225–150 B.C. while at site 8 a saucer with a 're-curved' rim (Taylor, *op. cit.*, p. 146) should belong to the last half of the second century. Similarly at sites 9 and 194 there are examples of form A.21 (225–150 B.C.). Site 196 produced a 'ribbon band' bowl of form A.31 (late second century) and a bowl with an everted rim (Taylor, *op. cit.*, p. 179) that might belong to any period from the late second century to the introduction of Arretine ware. These examples suggest, therefore, that the initial expansion of settlement around Capena and on the Flaminia ridges took place at the same time as that around M. Palombo. It would take time, however, before settlement

⁸⁴ 8, 15, 57, 59, 62.

⁸⁵ cf. Livy ix. 36. 9 of the M. Cimini.

⁸⁶ The forest on M. Soracte was cut during the first world war. cf. Ashby, *Memorie*, p. 131.

⁸⁷ All the evidence for dating is drawn from D. M. Taylor, 'Cosa: Black-glaze Pottery,' *MAAR*, xxv (1957), pp. 65–193. I am very grateful to Miss Taylor who examined the pottery and made this section possible. Her work at Cosa forms one of the two basic studies of this type of pottery. The other is by N. Lamboglia, 'Per una classificazione preliminare della ceramica campana', *Atti del Primo Congresso Internazionale di Studi Liguri*, 1950, 139–206, based mainly on excavations at Albintimilium in 1938–40.

⁸⁸ cf. *PBSR*, xxxix (1961), p. 56.

reached the remoter ridges. In this respect the M. Forco ridge provides valuable evidence. It is the smallest and least accessible of all the Flaminia ridges and so the date at which the excavated site (154) was constructed is important. Its reticulate walls with tufa quoins suggest foundation in the Augustan period, probably as a result or continuation of Caesar's veteran land distribution programme.

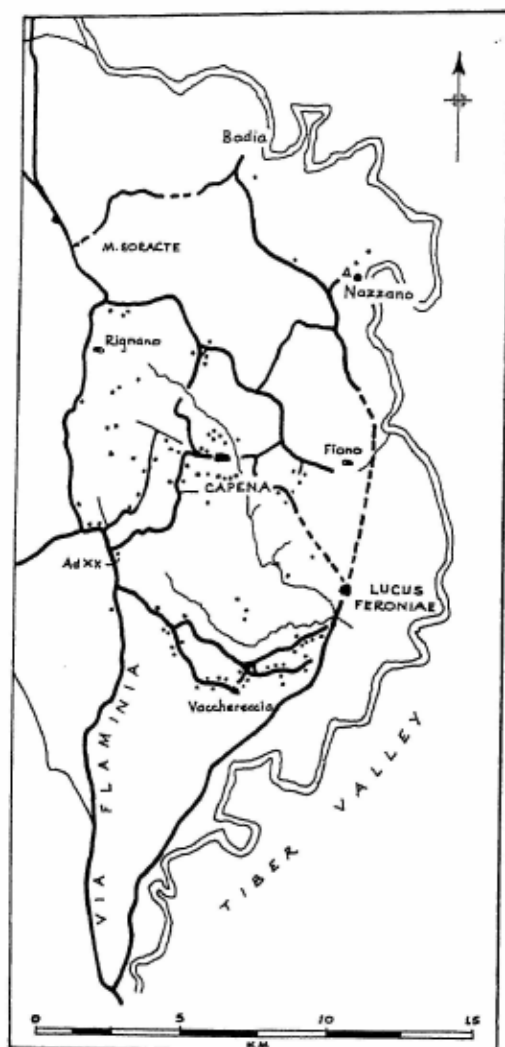


FIG. 10. THE AGER CAPENAS: DISTRIBUTION OF BLACK-GLAZED WARES

In fact a foundation in the years following 46 B.C., the year of Caesar's land distribution in the Ager Capenas, is not impossible, because several sherds of black-glazed ware which ceased to be made after 40–30 B.C. were found in the farmyard.³⁹

³⁹ For the detailed evidence of the date v. p. 156.

On the eastern side of the Ager Capenas the effective settlement of the *Lucus Feroniae* plain was connected with the foundation of a *colonia* at *Lucus Feroniae*—*in planitia ubi miles portionem habuit*.⁴⁰ The reasons for thinking that the initial foundation was made in 46 B.C. are given in detail in Pt. I, p. 194 ff. The disturbance of the subsequent years probably meant that a stable settlement did not emerge

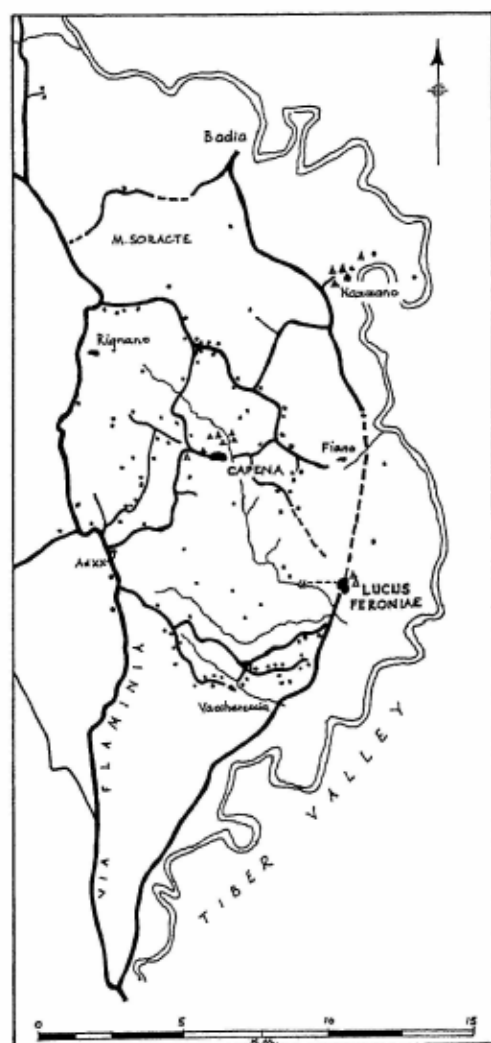


FIG. 11. THE AGER CAPENAS: DISTRIBUTION OF *terra sigillata*

until the Augustan period, when there is a clear evidence of a public building programme (Pt. I, p. 193) and probably an additional assignment of veterans.⁴¹ The plain north of the town was divided into allotments and the two relevant

⁴⁰ *Liber Coloniarum*, 216.L.

⁴¹ Frontinus, *De Controversiis Agrorum*, A164=K. Lachmann, *Die Schriften der Römischen Feldmesser*, i. p. 47, l. 19 (cf. p. 46, l. 17).

entries in the *Liber Coloniarius* are in fairly close agreement. The first is given under *Colonia Capys* (Capena) *nam termini variis locis sunt adpositi, id est in planitia, ubi miles portionem habuit. qui termini distant a se in ped. LX LXXX C CXX CXL CL CLX CLXXX CC CCXX CCXL CCC. et si longius natura loci tendatur, sunt in pedibus DC DCCCXL DCCCCLX αXX αCC αCCCCXL* (216.L). The other appears

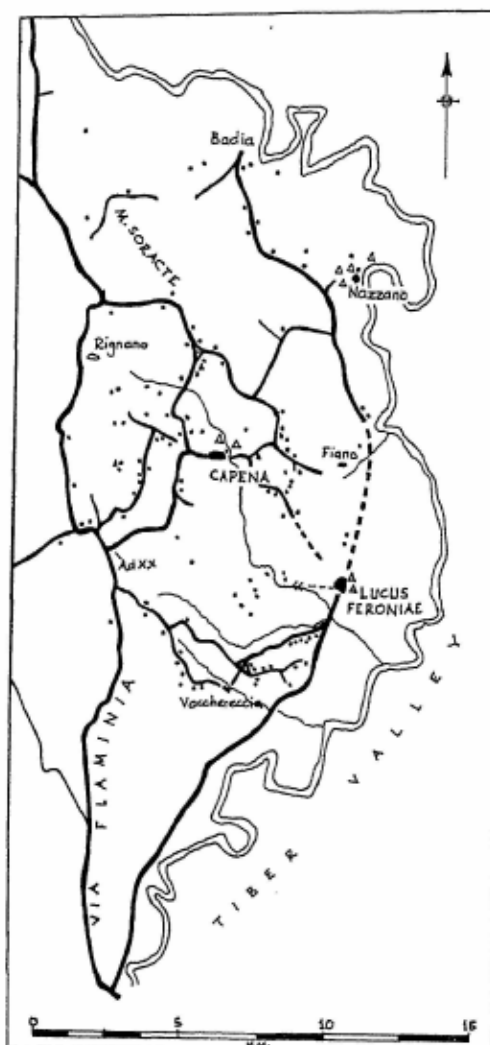


FIG. 12. THE AGER CAPENAS: DISTRIBUTION OF RED POLISHED WARES

under *Luco Feronia*: *ager eius finitur arboribus ante missis sed et aliis signis, quibus fines servantur in provincia Piceni, terminibus Tiburtinis* (i.e. of travertine) *qui distant a se in ped.XL usque in ped. CLXX* (256.L). The phrase *arboribus ante missis* is rather puzzling in this context. Its explanation is given in a fragment of Frontinus, *De Controversiis Agrorum* II: *arboribus quas finium causa agricolae relinquunt et ante missas*

appellant.⁴² Evidently *ante* equals *antea* and *missas* is used in the sense of 'left' or 'let go'. The implication may be that much of the *Lucus Feroniae* plain had to be cleared for the veteran land allotment scheme and that some trees were left standing as boundary marks.

The full picture of settlement to the end of the Republican period (based on the distribution of black-glazed ware) is given in fig. 10. It should be contrasted with fig. 11 which shows the distribution of sites yielding *terra sigillata*. This type of pottery began to be made at Arretium a little before 30 B.C. and rapidly supplanted the earlier ware. Allowing for a slight overlap between the two wares the former map should give an approximate idea of the extent to which the area had been settled by Augustan times.⁴³ The picture of subsequent development provided by the *terra sigillata* map could represent the occupation of over two centuries. This pottery, however, overlapped with its inferior imitation, Red Polished ware (or '*terra sigillata chiara*'). As far as we know at present, in Italian contexts this pottery is post-Trajanic in date⁴⁴ and continued into the sub-Roman period, as late as the fifth or sixth century. Its distribution map (fig. 12) therefore represents as much as 300-400 years of possible occupation. Although none of the above wares can be used as an index of the number of sites actually in occupation at any one time, they do afford a broad picture of the amount of land cleared and under cultivation by the time that each fabric went out of use.

While expansion in the Republican period was largely confined to the southern and central Ager Capenas, figs. 11 and 12 leave no doubt that the settlement of the northern area was the achievement of the Imperial period, which saw a similar penetration of the Ciminian Forest north of Sutri.⁴⁵ Most of the sites along the Flaminia-Fiano road and the northern section of the Via Tiberina belong to this period and, as described on p. 127, sites crept high up the western slopes of M. Soracte. In the Valle Feliciosa north of the mountain ancient settlement moving up the valleys was gradually penetrating the forest cover from north-west to south-east (p. 112). The way in which sites are clustered close to the road rounding the northern tip of Soracte suggests that the route was passing through thick woodland and that the sites occupied small roadside clearings (p. 117). The eastern slopes of the mountain were never settled. The long ridge dropping from the mountain towards Badia failed to reveal any trace of ancient occupation despite intensive search. In antiquity it must have been covered by dense forest as it still is today. This prompts an estimate of the amount of land that remained untouched by Roman settlement. Forest cover probably survived along the northern, eastern and south-eastern slopes of Soracte, around Ponzano Romano and along the western flank of the Tiber valley north of Fiano towards Civitella S. Paolo. These areas still remain densely wooded to-day and it is only in the last decade with the current revolution in Italian agriculture brought about by the internal combustion engine and the caterpillar track that modern cultivation has approached the extent of

⁴² *Ibid.* p. 41, 11. 11-12.

⁴³ Since the map is based entirely on surface finds, it cannot claim to be comprehensive.

⁴⁴ N. Lamboglia, *Rivista di Studi Liguri*, vii, 1941, pp. 7-22; also xxiv, 1958, pp. 257-330, esp. p. 295.

⁴⁵ *PBSR*, xxvi (1958) p. 94, fig. 7. cf. J. B. Ward-Perkins, *Harvard Studies in Classical Philology*, lxiv (1959) pp. 18-20.

clearance reached in antiquity. As yet the central area containing the site of Capena and its cemeteries has hardly been touched by the plough.

Cernimus exemplis oppida posse mori.—These gloomy words of Rutilius Namatianus as he travelled homeward from Rome in A.D. 416⁴⁶ might serve as an epitaph to many of the cities of Etruria whose sites now stand deserted or partly occupied by some impoverished medieval successor. At Capena the site of Castellaccio (for details of its history in the medieval period *v.* G. Tomassetti, *La Campagna Romana*, Vol. III, p. 306 ff.) continued to be occupied on a small scale during the medieval period but this too soon dwindled away and one is left wondering what form post-Roman settlement generally took.

It is clear that there was, in many respects, a return to pre-Roman conditions (*PBSR*, xxv, 1957, p. 193 ff.) and in some cases this took the form of the re-occupation of actual pre-Roman sites. The extent to which the pattern of medieval settlement repeats that of the pre-Roman period, however, must have varied from district to district. Two areas at opposite ends of the Ager Capenas show that the reversion to pre-Roman settlement distribution cannot be taken for granted. There is no set pattern. In the M. Palombo area (p. 129) the pre-Roman pattern was repeated in such a way that the two Etruscan settlements (Vacchereccia and Grotta Colonna A) were both re-occupied, together with a third topographically similar site at Grotta Colonna B. At Badia (S. Andrea in Flumine) near Ponzano (p. 104) the picture is different: Badia itself was not a defensible site and the two medieval settlements of the area, the town of Ponzano and a small overgrown stronghold on M. Ramiano both occupied hilltops without trace of earlier occupation.

These examples show the difference in the post-Roman development of one area and another: but, if they tell different stories on this point, they are substantially in agreement in one important respect. This concerns the period during which the countryside continued to retain the stamp of the classical landscape. In the M. Palombo area the excavation of a classical site on a spur known as M. Canino (site 102) showed that the complex of buildings (dating from the late Republican period) had seen occupation until the 8th century if not later (Pt. I, p. 162). The main farm building of the unit may have been abandoned by the 7th century but another building with an *ambulacrum* showed continuity of use as a cemetery and contained burials dating from the classical Roman period to the 8th or 9th century. Confirmation of this dating came from two 8th or 9th century capitals that were illustrated in the original report.⁴⁷

At the other end of the Ager Capenas Badia presents substantially the same picture. The shift of settlement to the present site of Ponzano Romano did not occur at an early date in the post-Roman period. The basilican church at Badia dates from the 7th or 8th century and, from the historical point of view, the significant factor is that the church was built there and not at Ponzano. It would suggest that, at the time, Badia was still of sufficient importance to be the site of the major church in the area. It still formed the nodal point of the region as late

⁴⁶ *de reditu suo*, i. 414.

⁴⁷ *Not. Scav.*, 1937, p. 7 ff.

as the 8th century and the basic pattern of the classical landscape was probably maintained up to that time.

VI. TRANSPORT, BUILDING and ENGINEERING

(a) Communications

The major roads of the area were the Via Flaminia and the Via Tiberina. The date when the latter was constructed is not known. It would be interesting to know whether the formal lay-out of the Tiberina in fact preceded that of the Flaminia in 220 B.C. Tantalisingly an undated Republican milestone from the Nazzano area records the plebeian aedile P. Menates:—

┐ · M E N A T E S · ┐ · F
A I D · ┐ L
X X X

48

Menates is otherwise unknown⁴⁹; the text, however, gives no difficulty. Milestones are already attested in the mid-third century B.C. One (from m.p. LIII) on the Via Appia mentions the plebeian aediles P. Claudius Pulcher and C. Furius Paulus, later consuls in 249 and 247 B.C. respectively.⁵⁰ The aedile C. Cincius appears on another inscription from the Via Ostiense that Huelsen dated to the middle or late third century B.C.⁵¹ The Tiberina may well have been founded in the same period; it was almost certainly in existence, however, as a communications route long before its position became formalised as a state road, in much the same way that a predecessor of the Flaminia existed long before 220 B.C., the year in which C. Flaminius officially founded the road (v. Pt. I, p. 165).⁵² The evidence for its use in the Etruscan period has been set out in Pt. I, p. 165. To speak of the construction of the Flaminia is, in fact, rather ambiguous. Whatever else may have been implied by the term, the foundation of the great Roman roads may, in the first instance, have involved mainly the assumption of state responsibility for a pre-existing route. In practice the provision of paving was not immediate; in 293 B.C. the paving of the Via Appia (founded 312 B.C.) from the temple of Mars to Bovillae was an event sufficiently noteworthy to have been included in the literary record.⁵³

The Roman law-books distinguish the paved road from the gravel road (*via glareata*), and this again from the mere levelled track without metalling (*via terrena*).⁵⁴ An interesting feature of the *selce*-paved road is the difference in the standard of paving between an important route like the Flaminia and a minor road such as that found in the Sorbo crater 5 km. west of Stazione di Magliano. Apart from a difference in width (4.20 m. and 2.10 m.), the paving is of an inferior standard to that of the Via Flaminia; the *selce* blocks have been much less regularly cut and no foundation layers of gravel or clay were found beneath the paving-blocks. This is

⁴⁹ CIL. xi, 6616; ILS. 5802 (cf. p. 103 and Ashby, *Memorie*, p. 144).

⁵⁰ T. S. Broughton, *Magistrates of the Roman Republic*, ii, p. 467.

⁵¹ CIL. i. 2^a, 21; *Eph. Epigr.*, viii, 676.

⁵² CIL. vi. 31585; Huelsen, *Röm. Mitt.*, x, 1895, p. 298.

⁵³ Following the chronology of CAH, viii, p. 43.

⁵⁴ Livy x. 47. 4.

⁵⁴ *Dig.*, xliii. 11. 2.

also the case with the road that descends from the south-eastern gate of Capena (Pt. I, p. 135). The paving appears to rest on a roughly prepared bed of natural tufa and there is still an air space around the underside of the stones.

The relationship between local geology and building materials was close. Blocks of *selce* were the standard paving of roads near Rome; the Flaminia was exclusively paved with *selce*, likewise the Flaminia-Tiberina link road.⁵⁵ Apart from erratic boulders, however, large quantities of the stone are not readily available in the Ager Capenas. There are small deposits near Magliano, but the nearest large source would have been from the M. Sabatini-M. Cimini chain c. 16 km. to the west where *selce* is abundant on the edge of the volcanic crater-lakes. The paving of the Via Amerina as early as c. 240 B.C. was facilitated by the unlimited supplies of *selce* available at the roadside, e.g. near Settevene.⁵⁶ The haul to the Ager Capenas, however, would have been at least 14 km. and the cost would have been expensive in time, if not in manpower.⁵⁷ *Selce* paving is limited, therefore, to the western Ager Capenas, the region closest to the source of supply. Elsewhere, as at Capena itself, the normal material was limestone from Soracte and occasionally travertine from the Lucus Feroniae plain. The quality of the latter stone is much inferior to the former and its use was further limited by the presence of an erratic outcrop of limestone on M. Belvedere south of site 241 overlooking the travertine plain. The streets of Lucus Feroniae were paved with limestone, as were all three roads leaving Capena. North of Lucus Feroniae the Via Tiberina seems to have been paved with limestone, while the Flaminia-Capena road changes from *selce* to limestone at 951702, close to site 6 at the northern end of M. Rigorio.

The secondary class of road, the *via glareata*, has no strict equivalent in the area. The explanation is that both the secondary road and the purely local trackway, the *via terrena* (i.e. roads without regular limestone or *selce* paving), generally took the form of cuttings in the tufa. In a region of volcanic tufa deposits like the Ager Capenas this must have been a far quicker and less expensive method of road construction than laying a gravel surface. The process by which the cuttings were formed is a simple one. Whenever the road ruts became impossibly deep, the floor of the cutting would be roughly levelled at a lower depth. Unfortunately none of the cuttings in the Ager Capenas are sufficiently free from overgrowth to reveal traces of successive deepening, but the phenomenon has been noticed in the Ager Faliscus.⁵⁸

There must also have been tracks of an even more rudimentary nature than the *via terrena*. Paths have an obvious use as field or estate boundaries and it is in this context that the Liber Coloniarum mentions *viae cavae* in the Ager Capenas.⁵⁹ Their name suggests their character, and an example was located close to a small section of the Via Tiberina south of Casale Meana (p. 101). It appeared in the northern face of the cutting of the Autostrada del Sole and represents a small,

⁵⁵ At one point (961640) a kilometre above Fontanile di Vacchereccia it appears to have been built with a central rib.

⁵⁶ *PBSR*, xciv, 1957, p. 189.

⁵⁷ Cato, *de agr. cult.*, xxii. records that a wagon laden with an olive-crusher took six days to make the journey to Suessa (25 Roman miles) and back.

⁵⁸ *PBSR*, xciv, 1957, p. 186.

⁵⁹ Lib. Col. 217.L., *ceteris autem locis vias cavae, itinera, coronas (ridgec rests) et antenomin ata.* cf. 255.L. *habet ripas, vias et rivos finales.*

deeply-entrenched track that probably served both as a link with the large site at Casale Meana (295) and as a track up the valley floor towards Nazzano. A few minute fragments of coarse ware (and its proximity to site 294) leave no doubt that it belongs to the Roman period. About 0.50 m. below the present surface the profile of the Roman ground level is clearly traceable (fig. 13). Its line is broken

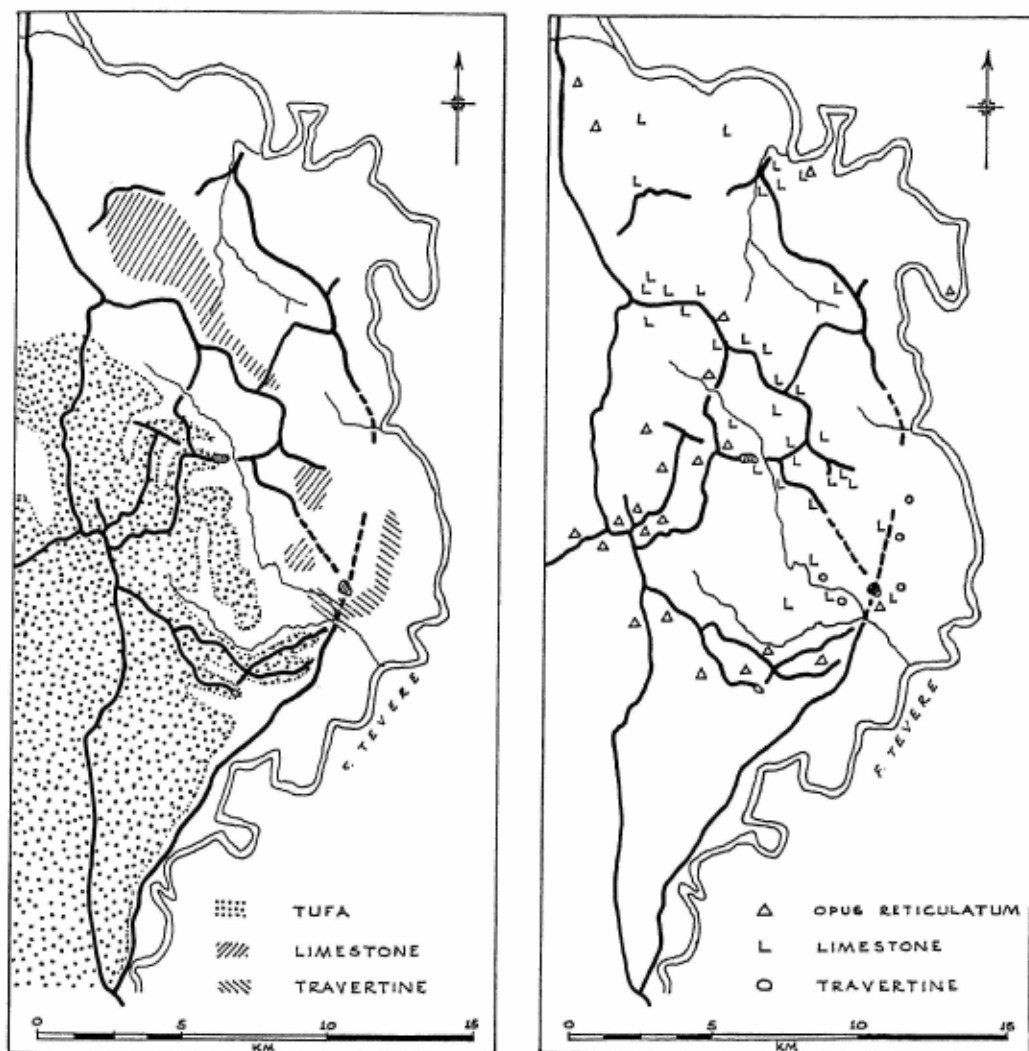


FIG. 13a.b. THE AGER CAPENAS: MAP OF (a) SURFACE GEOLOGY AND (b) DISTRIBUTION OF ROMAN BUILDING MATERIALS

by a steep trough *c.* 3.50 m. deep and 1.50 m. wide at the bottom. The northern side of the track is far steeper than its southern counterpart, perhaps because the route was following a curve at the point where it was cut in section. The point is difficult to establish because the track is not cross-sectioned at right angles. Its

depth (c. 3.50 m.) is impressive; there is no trace of any paving at the bottom, nor is there any coherent stratigraphy in the confused layers representing the seasonal metamorphosis from mud to dust and mud again. A thin stratum of grit and small stone c. 0.80 m. above the track floor might perhaps be the detritus of a particularly violent rainstorm when the cutting had ceased to be used and was already starting to be filled. It is fortunate to have found so small an example of a *via cava* and one that so aptly fits its name.⁶⁰

(b) *Building Techniques and Materials*

The standing remains of the Ager Capenas have been discussed individually in the descriptive part of the text. They show no significant addition to our knowledge of Roman building technique. The only possible exception is the dam of the Aqua Augusta near Lucus Feroniae, where, as described in Pt. I, p. 198, a tree-trunk seems to have been inserted in the heart of the concrete mass forming the dam. No parallel is known, but the feature presumably demonstrates a reluctance to trust concrete aggregate by itself.

There is an interesting relationship between the facts of local geology and of structural technique. No less than three different building materials are available within the region. Their sources are clearly delimited. Tufa predominates in the southern and most of the central area. Much of the northern region belongs to the tertiary limestone series of M. Soracte, while along the eastern edge the Lucus Feroniae plain provides a source of rather inferior travertine.

Tufa is eminently suitable for use in large blocks, which set hard with weathering and can be split vertically from the bed rock. As such, it was widely used for the construction of large walls and, in particular, ramparts during the Etruscan and early Roman periods. In common with the walls of Sutri, Caere, Veii, Falerii and many *pagi* in the Ager Faliscus, the ramparts of Capena, the *pagi* of Vacchereccia and probably Nazzano were all built in this style (Pt. I, pp. 135, 154). Even when the need for large defensive walls had disappeared, it had many uses. The Roman builders thought it worthwhile hauling from the Grotta Oscura area at the southern end of the Ager Capenas the huge rectangular blocks that form the foundations of the Republican temple on the east side of the Forum at Lucus Feroniae. The foundations, in fact, appear structurally very similar to those of the newly discovered example in the centre of Vulci.⁶¹ The large podium of unknown purpose beside the *castellum* of the Aqua Augusta was also built in *opus quadratum* and the base of an equestrian statue in the forum was formed of large tufa blocks with a facing of marble veneer.

The advent of concrete with a reticulate facing created a demand for smaller blocks, and for this the materials available locally were quite adequate. Altogether twenty-four instances—there must be more—of tufa *opus reticulatum* were found.⁶² The style first appeared in Rome in the Theatre of Pompey in 55 B.C., where the

⁶⁰ A feature of this kind can now only be located by large-scale earth-moving and recently the widening of the cutting in which the modern Via Cassia crossed the southern tip of the Baccano crater has revealed another example.

⁶¹ The initial report of this excavation (by S. Pagliari) appears in *Not. Scav.*, 1959, pp. 102–11.

⁶² 14, 41, 51, 70, 80, 88, 101, 112, 116, 118, 119, 129, 130, 132, 154, 176, 183, 192, 204, 205, 209, 214, 220, 277.

size of the individual *tufelli* is small, c. 5-6 cm. Subsequently the average size increased to c. 10 cm.⁶³ The *tufelli* in the wall excavated at site 155 on M. Forco measured between 9.5 and 10.5 cm. across (p. 150). Tufa, however, did not exist north-east of the line of the Fosso di S. Martino and the distribution of sites with *opus reticulatum* (fig. 14) shows how closely building materials were related to the stone most readily available. The examples of tufa *opus reticulatum* are, with two exceptions, all confined to the southern and western Ager Capenas. Of the two exceptions on the north-eastern side of the Fosso di S. Martino, one is a large site (192), whose owner was presumably sufficiently wealthy to pay for the haulage of tufa, while the other (220), close to Soracte, is something of an oddity. There a wall was found in section measuring c. 2.20 m. in height. Of this the top 90 cm. were constructed in good quality *opus reticulatum* (with *tufelli* measuring 7 cm.

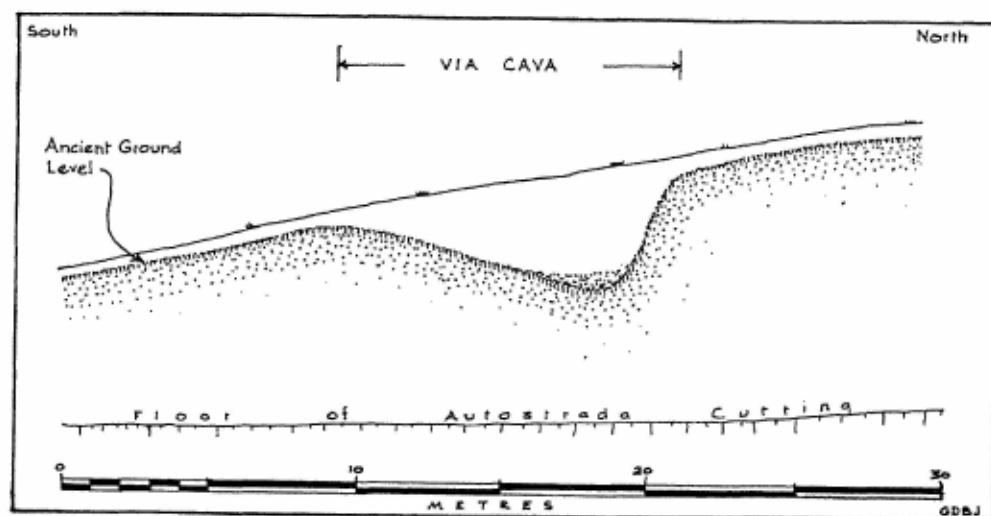


FIG. 14. CASALE MEANA: SECTION ACROSS 'via cava'

across on average), the lower section in limestone blocks. The point seems to be that only a small supply of tufa was brought to the site.

The durability of limestone gives it an obvious constructional value. Almost all the doorsills found in the area were cut from limestone. The slopes of Soracte formed an open quarry for an inexhaustible supply of blocks for roads and buildings in the area. It is not surprising, therefore, that almost all the sites along the Fiano-Flaminia road used it. The descending gradient to the south-east would have helped the transport of stone to the Capena area, and both on this side and to the north-east limestone was carried six or seven kilometres from the source of supply. Its use was further promoted by two other workable deposits south-east of Soracte on the M. Belvedere and Monte S. Lorenzo ridges overlooking the Lucus Feroniae plain. Their presence brought limestone within economic reach of the Lucus

⁶³ G. Lugli, *La Tecnica Edilizia Romana*, 1, p. 506; M. E. Blake, *Ancient Roman Construction in Italy from the Prehistoric Period to Augustus*, pp. 253-75.

Feroniae area (the journey would be entirely downhill) and probably accounts in part for the comparative neglect of travertine. The outcrops of M. Belvedere, the larger of the two deposits, supplied the material for the large villa astride the northern tip of the ridge (241) and several smaller sites in the area. The outcrop of Monte S. Lorenzo, known locally as Sasso di Fiano, was quarried to supply the large site at its foot (278) and even site 41 on a tufa ridge one and a half kilometres to the south-west. It was also used to provide the limestone blocks of the Aqua Augusta dam a kilometre downstream.

Limestone was, however, difficult to work, and the production of reticulate limestone blocks would have been an expensive process. Consequently, despite the wide use of limestone itself, limestone reticulate work was only found at Lucus Feroniae and six other sites.⁶⁴ Nor is it coincidence that at least four of the six sites are known to have been large buildings, whose owners could presumably undertake the extra outlay required. The standard of execution varies widely. On the upper terrace of the Giardino villa (217) the work was of good quality and the blocks cut to a fairly consistent 13–14 cm., but at the Fiano villa (241) the result was little better than *opus incertum*, at least in the fragment that survives. The extent to which *opus incertum* was used (as in the Castellaccio building at Capena) is difficult to estimate, because the style can only be recognised in standing walls.

Travertine is the least used of all the building materials under discussion. The variety found close to Lucus Feroniae is inferior to the deposits below Tivoli, and the two quarryable deposits of limestone (mentioned above, p. 139) lie on the M. Belvedere and Monte S. Lorenzo ridges ringing the western edge of the plain. From the travertine debris observed, however, many of the sites on the Lucus Feroniae plain must have been built with this stone.⁶⁵ In the town itself travertine was used for paving stones and slabs, for the columns of the colonnade along the western edge of the forum and for a capital found on the eastern edge of the town during the construction of the Autostrada del Sole. Travertine is formed from decayed vegetable matter and contains many air spaces which do not make the stone very suitable for column drums. This perhaps explains why both the colonnade and the single capital are of the rare Tuscan order which is slightly simpler to carve than the Doric, in the same way that a set of columns at Alba Fucens⁶⁶ have drums that are square in section to overcome the difficulties of working in the local limestone.

While *cuniculi* are to be found throughout most of Southern Etruria and Latium,⁶⁷ the paucity of examples in the Ager Capenas appears strange at first sight. The

⁶⁴ 41, 214, 217 (the Giardino Villa), 229 (the M. Cupellone site), 237 (Fiorano) and 241 (the villa above Fiano).

⁶⁵ e.g. 246, 256, 266, 272, 273 and 277, at which a few blocks of travertine *opus reticulatum* were found.

⁶⁶ In the main shopping street on the northern side of the forum. For the town v. F. de Visscher and F. De Ruyt, *Antiquité Classique*, xx (1951), pp. 47–84.

⁶⁷ A detailed discussion of *cuniculi* by A. Kahane and S. Judson will be found on pp. 74–99 of this volume. For previous discussion of the *cuniculi* of the Roman Campagna v. P. Fraccaro, 'Di alcuni antichissimi lavori idraulici di Roma e della Campagna', *Opuscola* (Pavia, 1957), vol. iii, pp. 1–36, being a reprint with four added appendices from *Bullettino della Società Geografica Italiana*, V, viii, 1919, pp. 186–215. Fraccaro makes the important point that many *cuniculi* were for the collection, not the disposal of water. He is wrong, however, in criticising Ashby's statement that much of the area north and east of Veii was drained by an elaborate series of *cuniculi* (*The Roman Campagna in Classical Times*, pp. 239–40).

example below the site of Capena (whose purpose was to drain the Lago Vecchio) has been discussed in Pt. I, p. 143, cf. fig. 9. A kilometre up the Fosso di Valletunga a short *cuniculus* was located beside site 142 (Pt. I, p. 171). Other instances belong to the group of *cuniculi* that served as drains or cisterns. These were identified during the quarrying of the major site (49) above the Fontanile di Vacchereccia and again during quarrying beside the lower rampart at Capena, where one such storage *cuniculus* was lined with a thin coating of fine white mortar (Pt. I, p. 140). Even allowing for as many *cuniculi* again having evaded detection, the number is still surprisingly few in comparison with the Ager Veientanus, for instance. The explanation is largely geological. The *cuniculus* technique was developed in the volcanic tufas of the anti-Appennines, and the limestone and travertine areas (with their associated clays) which cover a large percentage of the most populous region of the Ager Capenas (v. p. 138) make it quite unsuitable for *cuniculi*. Moreover a system of drainage *cuniculi* such as that of the Etruscan Ager Veientanus implies large resources and a strong central authority; and there is nothing to suggest that Capena had either of these in the Etruscan period.

"The Romans inherited their technique for the drainage of marsh-districts and lakes from the Etruscans, whose admirable systems are known to us (though very imperfectly) . . . and probably for a long time it was Etruscan workmen who kept up the tradition."⁶⁸ Just how strong this tradition was can be seen from the survival and elaboration of the *cuniculus* in what was originally its least common function, the storage of water. In the Ager Capenas, apart from conventional Roman cisterns of the barrel-vaulted variety,⁶⁹ there is a small group of underground cisterns belonging to the Roman period that use the technique of the *cuniculus* to conserve water. Perhaps the best example occurs on the south-eastern side of Capena, where quarrying has cut across the southern arm of a *cuniculus* lined with a thin coat of *opus signinum* (fig. 15). The shaft ran into the hillside for c. 4-50 m. and then another shaft turned at right-angles towards the east. Above the junction of the two *cuniculus* arms, a wellhead (now choked) originally connected with ground level. A close parallel was found beneath site 98 on the M. Palombo ridge where the collapse of the wellhead through erosion revealed two *cuniculus* arms lined with *opus signinum* dug into the tufa subsoil (fig. 15). The widening of the modern road cutting at site 220 uncovered a third instance in which the shafts (lined with a thin layer of *opus signinum*) were cut in a cruciform plan with the wellhead set over the centre of the main shaft. A comparable cistern was destroyed by road building at the *bivio* to Civitella S. Paolo on the M. Verde ridge (324). All these examples share the same basic principle of short *cuniculi* radiating from a wellhead.

There must be many others to be found in the Campagna.⁷⁰ Beneath the oldest part of the villa of Lucius Verus at Acquatraversa, for example, Lugli discovered a series of water-storage galleries, paralleled by *cuniculi* used as cisterns

⁶⁸ *The Legacy of Rome* (ed. C. Bailey) p. 470.

⁶⁹ Examples occur at sites 70, 210, 211, 278 and 345.

⁷⁰ At least three are known in the Ager Veientanus (*PBSR*, xxix (1961), p. 48) and from personal observation others are to be found near Prima Porta and the site of Fidenae on the south bank of the Tiber.

below a large Roman villa at La Cecchignola on the Via Ardeatina.⁷¹ On a smaller scale is the example below the so-called Villa of Pompey at Albano;⁷² one section exactly resembles the trefoil plan of another cistern found by Colini under the eastern corner of the Palazzo dei Conservatori.⁷³ In practice both the last-mentioned examples are very close to the twin-armed cisterns at Capena and site 98.

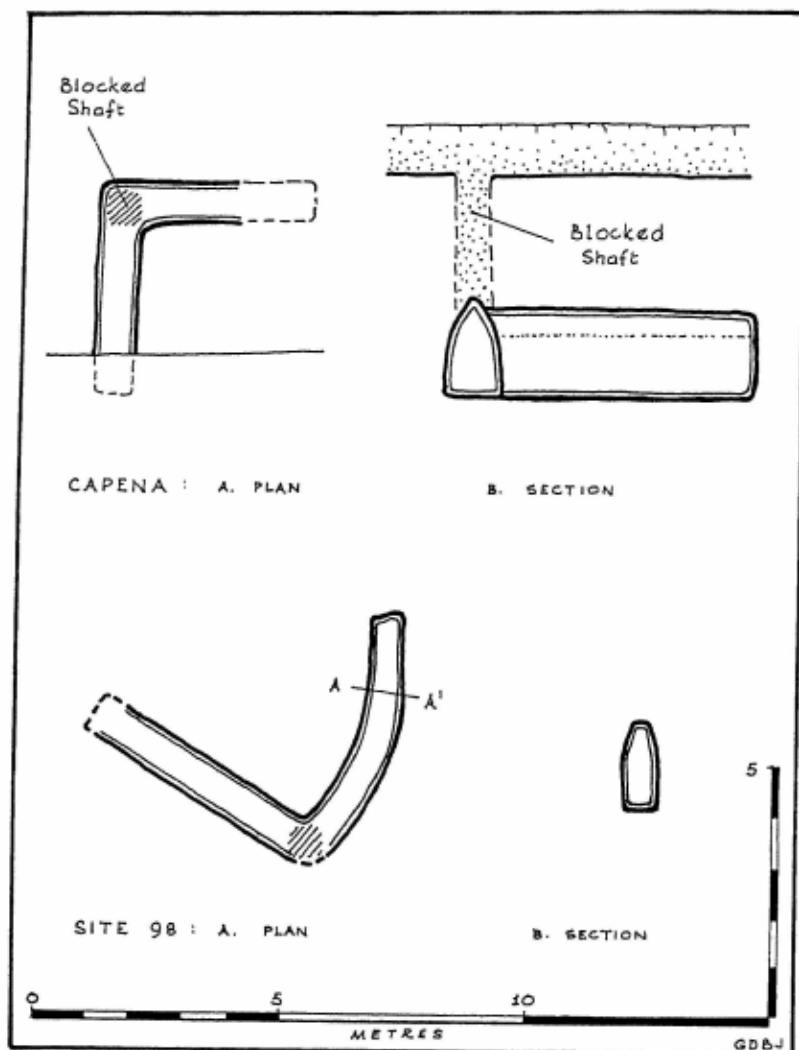


FIG. 15. STORAGE *cuniculi* IN THE AGER CAPENAS

In the first place the similarity of dimensions between the published examples and those from the Ager Capenas shows how closely this kind of work was still

⁷¹ G. Lugli, *Bull. Comm.* li (1923), p. 53, fig. 7: *Not. Scav.*, 1939, p. 358. For another instance found by Ashby at a site on the Via Clodia v. *PBSR*, xxiii, 1955, p. 71.

⁷² *Bull. Comm.* xlii (1914), p. 281; *ibid.* li (1923), p. 55, fig. 8.

⁷³ A. M. Colini, *Bull. Comm.* lxix (1941), pp. 83-5.

tied to the Etruscan tradition, where the governing factor was the space in which a man could reasonably wield a pick. The gallery below the villa of Lucius Verus is 1.80 m. high and 0.90 m. wide at its base; that beneath the 'villa di Pompeo' 1.68 m. by 0.88 m., while the example below La Cecchignola is 1.80 by 0.90 m. The Palazzo dei Conservatori cistern is slightly larger, 2.0 m. by 1.10 m. Compare the dimensions of the examples from Capena (1.75 m. by 0.90 m., 1.72 by 0.92 m. and 1.82 by 0.99 m.)⁷⁴ and the similarity between the two groups in this respect is obvious.

The second link between them is one of date. With the sole exception of site 220 which appears to be of Julio-Claudian date,⁷⁵ all the examples belong to the Republican period. The *cuniculi* at Capena and site 98 were both dated by the presence of black-glazed ware. Of the published cisterns the three from villas all date from the early 1st century B.C., while that below the Palazzo dei Conservatori is probably earlier because the construction of the Aqua Marcia brought a constant supply of water to the Campidoglio area in 140 B.C. There must be many other undetected examples of this principle, i.e. vertical shafts with short lateral *cuniculi* opening off radially to tap water-bearing strata. Enough instances have been collected, however, to show that they form an interesting survival and adaptation of the Etruscan *cuniculus* tradition in the Republican period before the advent of large-scale aqueducts and mastery of barrel-vaulting for the conventional type of cistern.⁷⁶

VII. THE CHARACTER OF ROMAN SETTLEMENT

Most of the sites described in this report survive only as a scatter of debris on the ground, though in a few cases upstanding remains survive. It is, however, possible to give an approximate assessment of the size by judging the extent of the debris and this has been done throughout the detailed survey. A much more elusive problem, however, is the form of the building involved. Of the 376 sites identified on the ground many produced little more than a handful of sherds and tiles. This is particularly true of the northern Ager Capenas, where much of the land is still unploughed and the material remains are slight. It is an important point; the further one moves from Rome the more the general quality and quantity of the finds decline. There is a genuine difference between the standard of sites in the northern Ager Capenas and those to the south, just as the latter in turn are generally inferior to sites in the Ager Veientanus.

The lists of associated finds give a general indication of the standard of living attained at the upper end of the scale. Mosaic *tesserae* were not uncommon; they were found on 43 sites⁷⁷ and were generally made from black *selce*. White stone *tesserae* and blue or green glass *tesserae* were, by contrast, comparatively rare, and, so far as one knows, all the mosaics located were composed of fairly simple geometric

⁷⁴ Given in the order as described on p. 141, i.e. Capena, site 98, site 220.

⁷⁵ Judging from Arretine ware found in the soil above. It is, in any case, the most sophisticated example from the Capena area.

⁷⁶ *Ab urbe condita per annos CCCCXXXI contenti fuerunt Romani usu aquarum quas aut ex Tiberi aut ex puteis aut ex fontibus hauriebant.* Front., *de aqu.* 4.

⁷⁷ 23, 38, 49, 51, 56, 71, 75, 76, 77, 79, 80, 81, 82, 85, 94, 97, 100, 104, 105, 112, 114, 116, 122, 127, 128, 130, 136, 139, 179, 181, 192, 205, 214, 216, 217, 221, 239, 241, 277, 292, 319, 363.

patterns. Like painted wall plaster, marble was not commonly found. Only twenty-two sites yielded fragments of marble veneer, which were almost all of the Luna variety.⁷⁸ The four exceptions to the use of cheap Italian stone contained fragments of Laconian green porphyry, Egyptian red porphyry and Egyptian "granito della deda".⁷⁹

With the exception of the *tesserae*, almost all the items above were confined to major sites. These are few in number and are obvious among their more modest neighbours. A list of sites where 'luxury' items were found cannot, however, cover all the larger sites, because there is insufficient evidence available in some cases. The exceptions can sometimes be recognised by the presence of an adjacent tomb (122, 229) or more simply by their size (32, 322, 339, 340). Several sites are also given prominence by the *selce*-paved *diverticula* that served them (112, 343, cf. also the paving of the Vallerlunga ridge road to sites 131, 132).⁸⁰ Columella in fact recommended the use of a *diverticulum* to avoid interference from travellers, while retaining the advantage of the proximity of a main road.⁸¹ Water transport probably controlled the choice of position for the large villas at S. Lorenzo (322) and Torrita Tiberina (340) and perhaps Casale Meana (295). The use of a river to carry produce to the towns was also recommended by the same author, and traffic down the Tiber and its tributaries has already been discussed on p. 105.⁸²

The broken ridges of the tufa countryside do not make the area suitable for a large-scale pastoral economy⁸³ and it seems fairly certain that the substantial sites under discussion were based on mixed farming, with the accent on wine and olive production for the Rome market. At the same time such establishments probably grew some corn and vegetables and carried small flocks of goats, sheep and cattle. Nor should one forget that the proximity of Rome created a luxury market in birds for table consumption. Varro's aunt owned a villa near Cures in Sabinum, across the Tiber from the Ager Capenas and twenty-four miles along the Via Salaria from Rome. There she bred an average of 5,000 thrushes a year for the Roman market at a profit of 60,000 sesterces, 'twice as much as a farm of 200 iugera (130 acres) makes'.⁸⁴

The architectural character of the larger sites is obscured by insufficient evidence. Columella advocated a three unit villa—*villa urbana*, *villa rustica* and *villa fructuaria*.⁸⁵ Such a plan, however, requires space and is not suitable for the restricted area

⁷⁸ 38, 49, 51, 56, 70, 71, 75, 112, 114, 130, 132, 139, 174, 182, 192, 193, 210, 217, 239, 241, 322, 326.
⁷⁹ 71, 112, 174, 241.

⁸⁰ cf. an inscription from the Nazzano area: *via privata L. Occi. M.F. (CIL. xi, 3949)*.

⁸¹ Col. R. R. I. v. 7.

⁸² Col. R. R. I. ii. 3. For river transport, cf. M. Rostovtzeff, *Social and Economic History of the Roman Empire*, pl. XXX, 1 and 5.

⁸³ The climate too is best suited to mixed farming. The chief feature of the weather is the difference in direction between summer and winter, between outblowing winds in winter and inblowing winds in summer. In winter the mean temperature of the Campagna is 4–8° C. (39.2°–46.4° F.). In July the temperature reaches an average of 24–28° C. (75.2°–82.4° F.). The area has between sixty and a hundred rainy days per annum, the rain mostly falling in heavy showers, and one or two days of snowfall. Cloud cover varies from 5 to 6 tenths in winter to 2 or 3 tenths during the summer months. On the average the Rome area has ten days of frost a year, while most of the rain falls in the autumn. Torrential thunderstorms often accompanied by hailstones that damage the vines are most frequent in spring and early autumn. Information from Italy, Geographical Handbook Series (Naval Intelligence Division) Vol. I, p. 406.

⁸⁴ Varro, R. R. III. 2, 14.

⁸⁵ Col. R. R. I. vi, i. cf. Vitruvius, *De Arch.*, VI. 6; Varro, R. R. I. 11.

available on Etruscan ridge crests. Many of the large sites in fact take the form of a solid concrete building platform set across the ridge crest and sometimes buttressed on the sides (38, 112, 192, 217, 241, 339, 340 and probably 71); a concrete building platform is also used on flat ground at sites 32, 278, and 322. The presence of outbuildings close to the main sites can also be inferred at several points from scatters of building material with little or no pottery (32 with 33; 42 with 43; 56 with 83; 71 with 72, 73; 192 with 191; 228 with 227, and perhaps 226). Unfortunately, while the large building platform often survives substantially intact (32, 241, 322), all internal features disappear and the Giardino villa (217) is the only instance where much is known of the interior arrangements. However, the rather smaller complex excavated by Pallottino on M. Canino (102) showed evidence of a wooden press (*torcularium*) and the narrow stairs in the middle of the interior perhaps led to a loft for the storage of grain, as recommended by Columella.⁸⁶

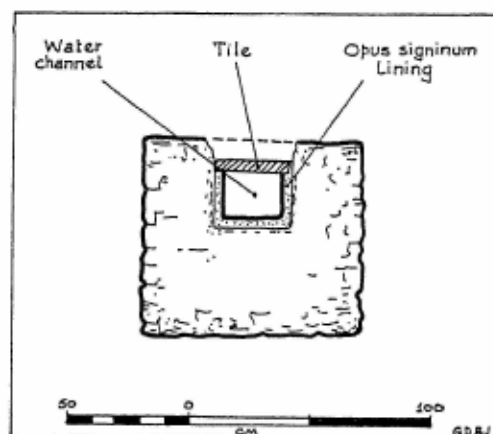


FIG. 16. I CASINI: SECTION ACROSS AQUEDUCT

Some external features of the large sites were also identified. An adequate water supply was needed and Cato states that the 100-iugera villa would contain a *hortus irriguus* close to the main buildings.⁸⁷ The elaborate arrangements for water distribution at the lower end of the Giardino villa (217) suggest something of the kind. Further evidence was not found within the area under survey, but a little beyond the southern limit of the Ager Capenas (at km. 10.3 of the Via Tiberina) the miniature aqueduct serving a large site beneath the modern farm of I Casini was identified. It appeared in section in the western bank of the cutting of the Autostrada del Sole and is reproduced in fig. 16. The channel is carried in a wall of concrete aggregate 0.91 m. wide and 0.84 m. thick. In the upper centre the actual *specus* was formed by a U-shaped channel (23.5 cm. wide by 36 cm. high) lined with *opus signinum* and sealed with a series of horizontally laid tiles. It is a rare instance of what must have been a regular feature of many of the larger sites.

⁸⁶ Col. R. R. I. vi, 11. For the *torcularium* v. I. vi, 18.

⁸⁷ *De Agr.* I. 7.

One is in fact mentioned in an inscription derived from a site on the Flaminia-Fiano road; the name of a farm is given and baths and other buildings are mentioned in the dedication.⁸⁸ In his description of a large villa Columella also describes the arrangements for ovens in the farmyard.⁸⁹ Two dome-shaped structures were uncovered in section by the widening of the modern road beside the large site at M. Cupellone (229). Both are heavily coated with clinker and are almost identical in size (4.40 m. and 4.70 m. wide and both c. 1.80 m. high). Representations of ovens on the tomb of Eurysaces at the Porta Maggiore and on the sarcophagus of Annius Octavius Valerianus in the Lateran are very similar and suggest that the structures at M. Cupellone are also outside ovens.⁹⁰

How were the larger estates formed? There can be little doubt that there was a persistent tendency towards the absorption of smallholdings into larger estates.⁹¹ Near Rome and in veteran settlement schemes the process seems to have been particularly noticeable. A passage in Cicero shows that Praenestine land broken up in land grants to Sulla's veterans was quickly reformed into larger estates.⁹² The proximity of Rome probably accelerated a trend stemming from the disadvantage of the small producer in a wine country and the fact that military life is not the best training for life on a farm. The unsuitability of veterans to an agricultural life is further explained by Tacitus when he describes the failure of veteran colonies at Anzio and Tarentum in A.D. 60.⁹³ Entries in the *Liber Coloniarius* suggest that this was not uncommon; settlements at Ostia and Super-aequum failed and were broken up for re-sale.⁹⁴ The proximity of Rome rendered Southern Etruria very susceptible to this trend. An entry in the *Liber Coloniarius* shows the drain of veterans away from the *Ager Veientanus*: *ager eius militibus est adsignatus ex lege Iulia postea deficientibus his ad urbanam civitatem associandos censuerat divus Augustus* (220.L). A striking example of the same process, as shown by archaeological evidence, occurred in an unpublished survey made (in January 1960) on the modern Grottarossa estate immediately north of the Via Flaminia only three and a half kilometres from the Ponte Milvio. Twenty-six sites dated to the late Republican period by finds of black-glaze ware originally occupied the ridge crests at intervals of a few hundred metres. Of these only five or six sites developed; the rest show no sign of continued occupation into the Imperial period.⁹⁵ They were almost certainly absorbed into the holdings of the few surviving farms. This shows the persistence of the tendency towards the absorption of small-holdings and it is unfortunate that a well-documented example of the process is not readily

⁸⁸ *cum balineo et aedificis quae iuncta ex utraque parte secus viam cum aquae ductu ex fundo Cutuleniano*. *CIL*. x. 3932. For an example of a more elaborate aqueduct serving a villa in the Viterbo area v. *CIL*. xi, 3003, a. b. (= *ILS*. 5771).

⁸⁹ Columella, *R. R.* I. vi, 11 and I. vi, 21.

⁹⁰ For representations of Roman ovens, v. M. Rostovtzeff, *op. cit.*, p. 32.

⁹¹ cf. Kornemann, 'Bauernstand' in *PW*, Supp. 4. 103, following Kromayer, *Neue Jahrb.*, 17, 1914, pp. 160-4.

⁹² *at videmus . . . agrum Praenestinum a paucis possideri*. Cicero, *de leg. agr.* II. 28, 78.

⁹³ *Tac. Ann.*, XIV. 27, 3.

⁹⁴ *Lib. Col.* 76.L, 243.L.

⁹⁵ Badian points out that among other factors, the influx of booty and tribute from victorious wars in the second century B.C. had led to considerable building activity which helped to depopulate the countryside by attracting people to Rome (*Historia*, Band XI, 2., 1962, p. 200). Over-expenditure on building programmes in fact seems to have created an urban economic crisis for Tiberius Gracchus to overcome. H. C. Boren, 'The Urban side of the Gracchan economic crisis,' *AHR*, 1957-8, p. 890 ff.

available in the Ager Capenas. The site excavated on M. Forco, however, does give a hint that the area was no exception to the general trend in the Campagna. The building ceased to be occupied by the third century at latest and in its last period of occupation probably became a barn or stable, presumably through incorporation in a larger estate (p. 157).

It is the small farms that form the majority of the sites described in the area. Instead of making a number of generalisations, it seemed better to treat one area in detail, including the excavation of a typical small farm. For a variety of reasons the M. Forco ridge, the small ridge to the north-east of Vallelunga (seen from the air in pl. XXV) seemed best suited to such a study. Altogether five sites (151-6) occupied the ridge; none was appreciably larger than the others and this makes it unlikely, in the first instance at any rate, that one farm belonged to a landlord and the rest to tenant farmers (*coloni*). The ridge is very narrow and the density of farms on the adjacent ridges to east and west (Pt. I, pp. 168-76) means that the valley bottoms to either side of the ridge almost certainly marked the boundary of each farm holding.⁹⁶ In consequence the area owned by each farm would have been limited to east and west by the two tributaries of the Fosso della Mola d'Orciano and to a certain extent its productivity would have been affected by the amount of scrub that crept up the hillside from the valley floor as it does today.

The ridge crest is in some places no more than ten metres wide and this makes it difficult to see that any of the farms possessed a cultivable holding larger than ten *iugera*. Taking into account the very steep slopes on either side, which in places would only have served as a foraging ground for pigs and goats, the amount of workable ground available to most of the farms in question was probably nearer half that figure. This is certainly the case with the excavated site (154) at the north-eastern end of the ridge. A plan of its immediate surroundings including its neighbouring farm (155) is given in fig. 17. As it shows, the farm is only 130 metres from its north-eastern neighbour, and little more to site 153 in the opposite direction. The small tomb associated with the building lay 35 m. away. For convenience the area of a *iugerum* has been marked on the map (fig. 17) and this shows that the farm holding is unlikely to have been larger than five or six *iugera*, assuming that sites 153, 154 and 155 existed side by side at the same time. This area of land, as suggested above, may have been further limited by scrub undergrowth on the ridge slopes to either side. A report on the excavation of site 154 follows below.

M. Forco: Excavation of Site 154 (figs. 17-21; pls. XXV-XXVIII)

As explained in the preceding section (p. 147) and seen from the air in pl. XXV, site 154 lies in the ridge saddle between M. Forco and the crest of a spur to the north-east. The advantages of excavating at this particular spot were many. The site had already yielded a wide variety of pottery from the collection of surface sherds, as well as a Domitianic *quadans*. Thirty-five metres to the east lay the small tomb associated with the farm (p. XXVI, a). All the other sites on the ridge had been identified and, as the area had been ploughed for the first time

⁹⁶ cf. *habet ripas, vias et rivos finales*. Lib. Col. 255.L. referring to the Capena area.

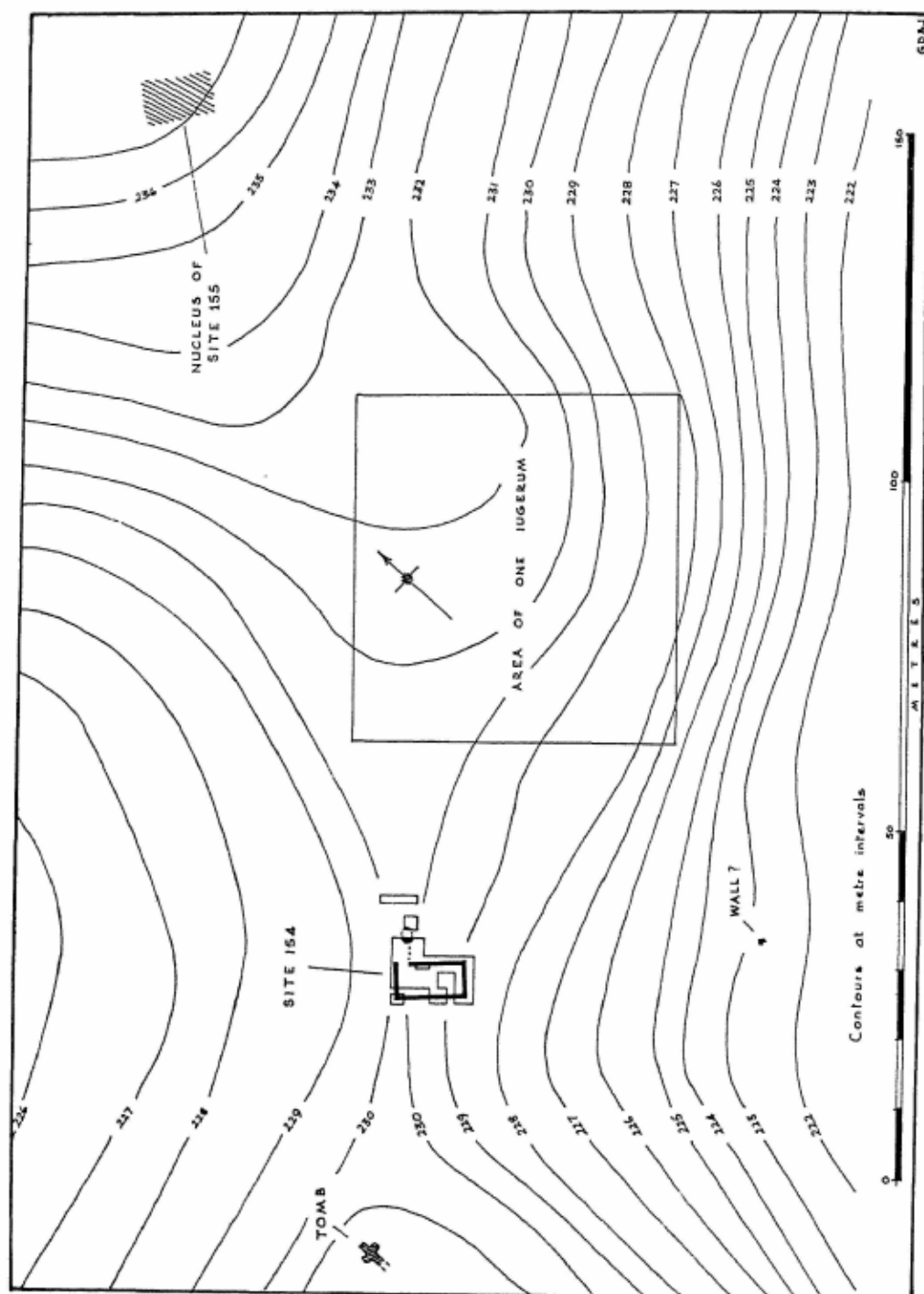


FIG. 17. M. FORCO: GENERAL PLAN OF SITE 154

by modern methods in 1956, it was hoped to uncover an intact series of stratified levels. In fact, the few years of ploughing had unfortunately carried away the lower southern end of the building and with it much that might have provided a complete picture of the interior. This drawback did not, however, greatly affect the main purpose of the excavation which was to determine the character of the

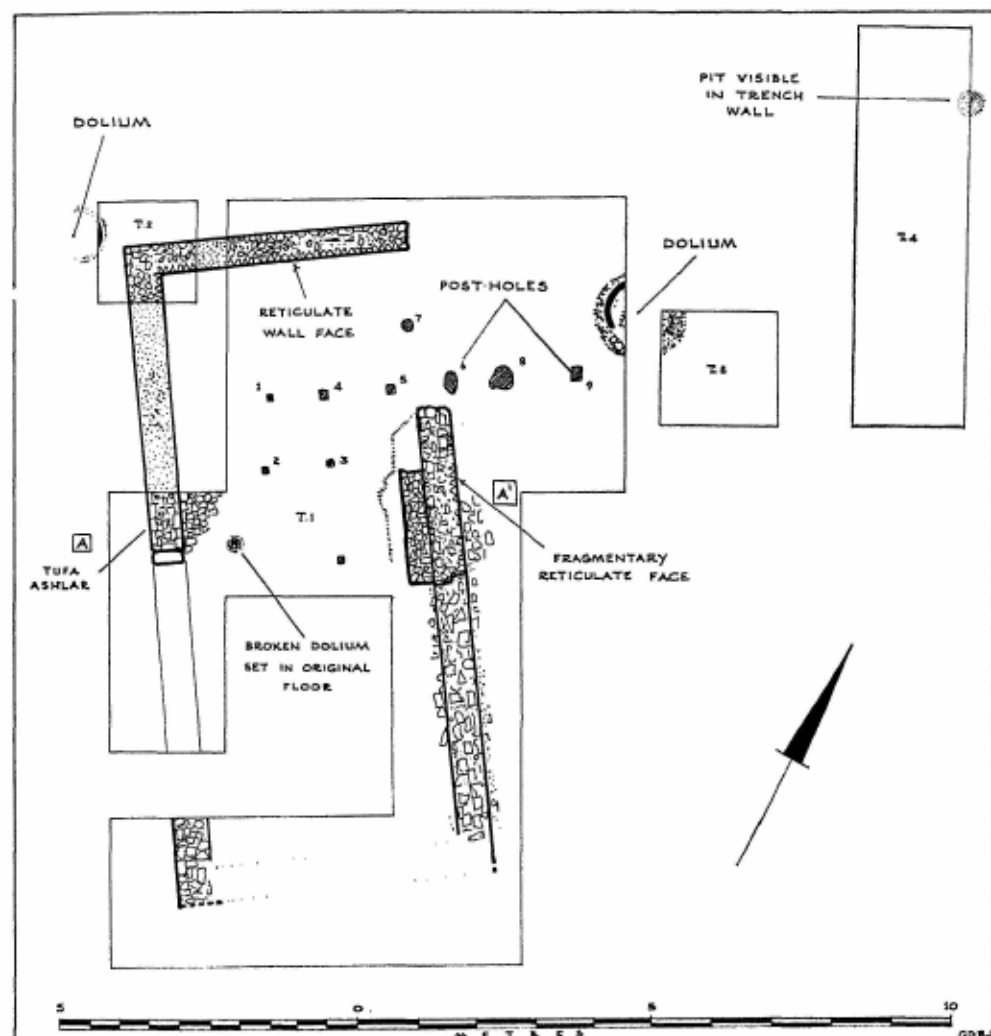


FIG. 18. M. Forco: EXCAVATION PLAN OF SITE 154

building in question, the date at which it was founded and the length of its occupation. The structure, it should be emphasised, lies at the lowliest end of the Roman archaeological scale and the results of the excavation were limited accordingly.⁹⁷

⁹⁷ I would like to express my sincere thanks to the two bodies that granted permission for the excavation to take place, the Soprintendenza dell'Etruria Meridionale and the Commune of Rignano Flaminio.

The outline of the building (shown in fig. 18 and pl. XXVI, *a*) as revealed by excavation formed a narrow rectangle measuring 10.95 m. by 5.10 m. externally with its longitudinal axis running N.N.W.–S.S.E. at an angle of 322°. The main trench (T.1) and its small western extension (T.2) uncovered the north-western, north-eastern and part of the south-western walls. The line of the fourth side could be estimated from the corner at the southern end of the south-western wall. The main entrance (2.60 m. wide) lay at the northern corner of the building but, on both sides, the supports of the doorway, whether of stone or wood, had been removed in antiquity. A second entrance occupied a medial position in the south-western wall, 5.10 m. from the western corner. One can only guess that its width was *c.* 1.00 m., because recent ploughing has carried away the wall footings to the south.

The structure was built in *opus reticulatum*. A few courses survive on the north-eastern wall but it is the north-western side (pl. XXVII, *a*), where the internal face is best preserved, that shows the high standard with which the masonry was executed. Indeed the local workmen helping with the excavation thought the standard of construction higher than that of their own homes in the older quarter of Rignano Flaminio. The reticulate wall (of which 4.17 m. survive) was 0.47 m. wide and, at its highest point, six courses of reticulate *tuffelli* remained. As shown in detail in pl. XXVII, *b*, the individual reticulate blocks measured from 9.5 cm. to 10.5 cm. square; their size and combination with tufa quoins (*v. infra*) suggests a construction date not later than the Tiberian period (*v. p.* 156). The same illustration (pl. XXVII, *b*) shows that the reticulate work rested directly on virgin tufa without any preparatory footings. The reason for this lay in the problem of siting the building across the curving hill crest. At the northern end the bed tufa had been cut away, while, on the southern side, to maintain a level platform the walls rested on heavy footings of building rubble. For this reason the external reticulate face ended at the north-western corner and the northern exterior face was finished in rough coursing, which would originally have been concealed by earth.

The tufa quoins mentioned on the previous page survive on the northern side of the small doorway in the south-western wall (*cf.* pl. XXVII, *d*). There, five ashlar courses rise to 55 cm., at which height the wall has been destroyed by recent ploughing. A large tufa block (measuring 30 by 40 by 30 cm.) suggested that the doorway had been blocked, probably during the third and last phase of occupation (*p.* 152).

On the eastern side of the room lay the principal internal feature, a bench or stall in mortar and tile. It ran beside the north-eastern wall, 1.10 m. from the southern end of the northern doorway. As excavated, its length was 1.80 m. and width 0.35 m. (pl. XXVII, *c*). The edge of the bench, or stall, is demarcated by a line of tiles set on end. The use of tile suggested that the feature did not belong to the original construction of the building, when tufa was used exclusively, and on excavation the interior of the bench, or stall, was found to be associated with Floor II, belonging to the second occupation period identified in the interior (*p.* 152).

On excavation the farmyard round the building appeared as a hard layer compounded from the mud and dust of successive seasons. The layer contained

much incidental material, including parts of an agricultural implement, nails and small fragments of pottery and tile. Owing to the way it had been formed, however, it contained no recognisable stratigraphy. An attempt to trace the history of the building thus depended entirely on the internal stratigraphy. A section (A-A¹) was cut across the interior a little to the south of the main entrance. It

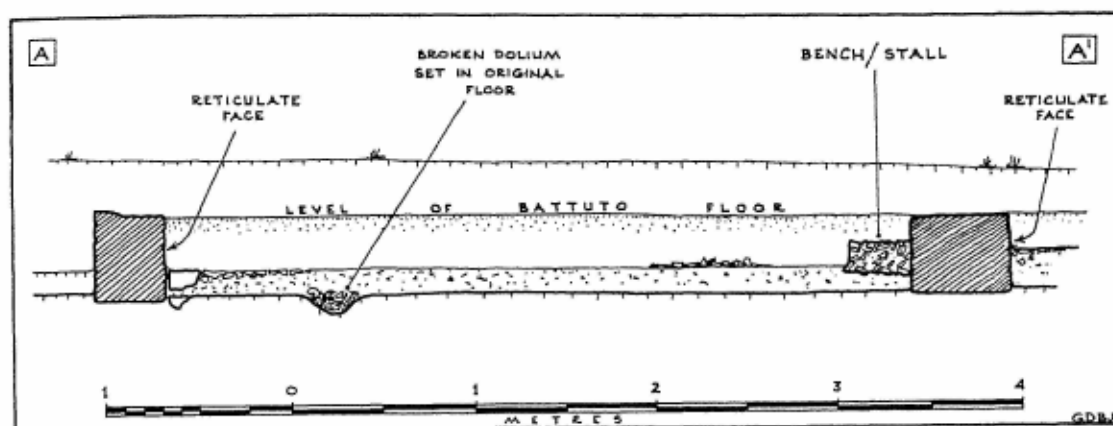


FIG. 19. M. FORCO: SECTION A-A¹

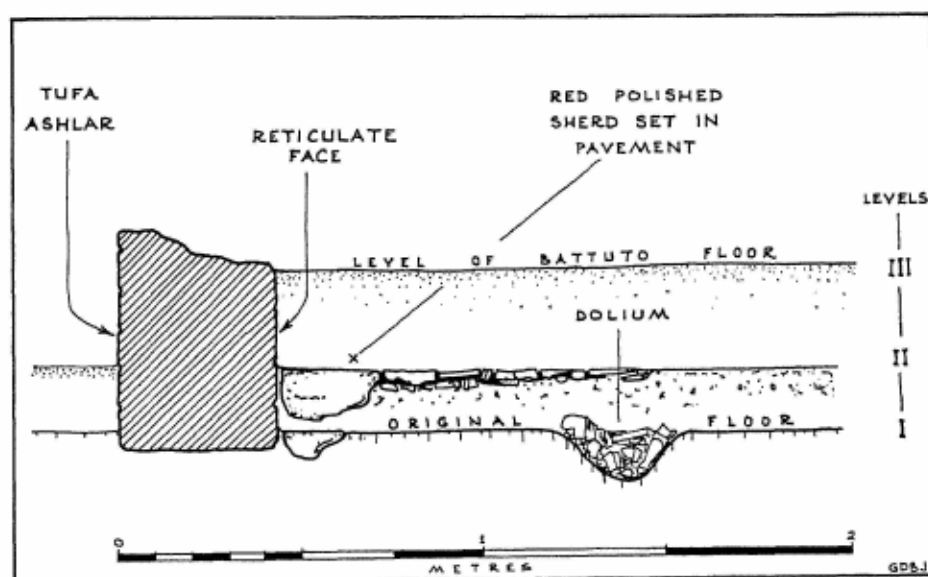


FIG. 20. M. FORCO: DETAIL OF SECTION A-A¹ WESTERN END

revealed three layers. The first of these was a beaten earth floor without paving, the second a partially paved floor associated with the bench, or stall, found against the eastern wall, and the third an earth floor containing a series of post-holes. The whole section is set out in fig. 19. The detailed identification of the occupation levels, however, depended on the evidence from the western side of the interior,

which is shown in fig. 20. At this point the western wall is 44 cm. high and a small offset of tufa blocks (c. 15 cm. thick) was found at the edge of the internal wall footing. Level with this runs the floor of hard-packed earth associated with the original occupation of the building. 92 cm. away from the wall a small *dolium* had been set in the floor. In the subsequent alterations brought about by the construction of a second, later floor the *dolium* had been broken and packed down into the hole in which it originally sat. The depression was 29 cm. wide and 14 cm. deep. With the *dolium* fragments lay a few pieces of tufa and tile, which probably served to wedge the vessel upright in its original state (cf. p. 153). The walls of the *dolium* were 1.5 cm. thick and its rim 7.5 cm. wide. The original level was succeeded by another in the form of a partially paved floor 16 cm. above. The paved section was constructed from small pieces of broken tile with a few tufa blocks as strengthening beside the western wall. The most important discovery, which served to date the level, was a fragment of Red Polished ware ('terra sigillata chiara') found incorporated in the actual paving 8 cm. from the western wall. The fragment is shown *in situ* in pl. XXVIII, a. On the other side of the room it was found that the bench, or stall, along the eastern wall (p. 150) belonged to this phase of the building. The lowest tile fragments forming the bench lay 8-9 cm. above the level of floor I and the structure had clearly been built at the same time as level II.

The third floor (III) located in the interior represented the final stage of occupation. It consisted of an earthen floor ('battuto') c. 26 cm. above the level of floor II. This increase in height represents the accumulation of many years, containing as it does many fragments of wood, tile, pottery and animal manure. The feature that gives the level its archaeological interest, however, is the series of postholes located in it. The majority of those identified (and ploughing has probably destroyed more at the southern end of the interior) form two rough lines across the interior at c. 2.20 m. and c. 3.25 m. from the northern wall. The exception is posthole 7, which seems to have formed the seating for a central doorpost. This and the other postholes are shown in pl. XXVIII, b. In all the examples found the filling of the posthole contained fragments of decayed wood and, in some cases, tiny fragments of coarse pottery. Details of individual postholes are given below (p. 153).

The well-defined edges of the postholes demonstrate an important point. The posts had not been inserted into the 'battuto' floor at a late stage in the third occupation period; if this had been the case, there would have been traces of a larger oval depression to allow for the insertion of the post. Instead the posts had been placed in position early in the use of floor III and the floor level had risen around them, thus leaving a sharply-defined impression where the timber had stood. It is this factor that distinguishes the internal postholes from those outside the building. Seen in plan (fig. 18) the line of postholes 1, 4, 5 appears to be continued outside the building by postholes 6, 8 and 9. In fact, the line would originally have been blocked by the southern doorpost of the main door and the three external postholes occupy a lower level in the farmyard. Moreover, they are much larger than the internal examples, having been sunk deeply into the surface of the farmyard. They probably formed the supports of a lean-to against

the eastern side of the farm, though lack of time prevented extensive clearing of the farmyard to verify this.

The purpose of the postholes in the interior is not altogether clear. They certainly do not seem to have been strong enough to support a second storey. They probably served, therefore, to create internal divisions in the room. Such a division into stalls could easily be explicable if the building ceased to be a farm-dwelling, as it had been, and became merely a barn for storage or animal stock. This is only a hypothesis, of course, because the number of postholes located in the interior is incomplete and the asymmetries in the positions of those that were found defy satisfactory interpretation in plan. If correct, however, the change from farm-house to barn would imply the absorption of the site into a larger holding.

The dimensions of the postholes are given below:

Posthole 1. Square; 11.5 by 11.5 cm.

2. Nearly square; 9.5 by 9.5 cm.

3. Roughly circular with a diam. of c. 8.0 cm.

4. Rectangular; 15.0 by 9.0 cm.

5. Roughly rectangular; 14.0 by 16.0 cm. Some minute fragments of coarse ware were found.

6. Oval; 22 by 29 cm. Contained fragments of red coarse ware. 35 cm. deep.

7. Roughly circular; diameter 19 cm. Fragments of coarse ware were found in the filling. Used for central doorpost.

8. Oval; 29 by 33 cm. with an irregularity on the western side. Fragments of red coarse ware.

9. Roughly rectangular; 19 by 17 cm.

For the position of the various postholes v. fig. 18.

The farmyard round the building contained several features of interest. A supply of water was probably kept in a dark red *dolium* found 2.80 m. from the north-eastern doorway of the house. It measured 1.05 m. in diameter and its original height was probably a little greater. The side walls varied between five and six centimetres in thickness. The whole vessel had been carefully set in a circular depression (c. 45 cm. deep) dug in the farmyard. After the *dolium* had been placed in position, its base had been firmly packed around with medium-sized *selce* and tufa blocks (pl. XXVIII, c). Unfortunately between the main trench (T.1) and trench T.3 an intervening baulk obscured part of the *dolium*, but the edge of the depression in which it sat could be traced in the latter trench. Otherwise this trench revealed nothing but the compacted floor of the farmyard.

A second *dolium* was located in the yard outside the north-western corner of the building. As in the previous case, not all the vessel was excavated; two-thirds lay beyond the western edge of T.2. The *dolium* was not set directly against the wall of the house but lay 0.40 m. away in the yard, perhaps to avoid any rainwater dropping from the eaves. A rim fragment was found with a width of 11 cm. across the top. The external flange measured 6 cm. and the average thickness of the wall was 9.5 cm. There was no indication of what the vessel originally contained. The presence of such *dolia* outside farm buildings must have been common. There is a documented Campanian example, for instance, from Gragnano near

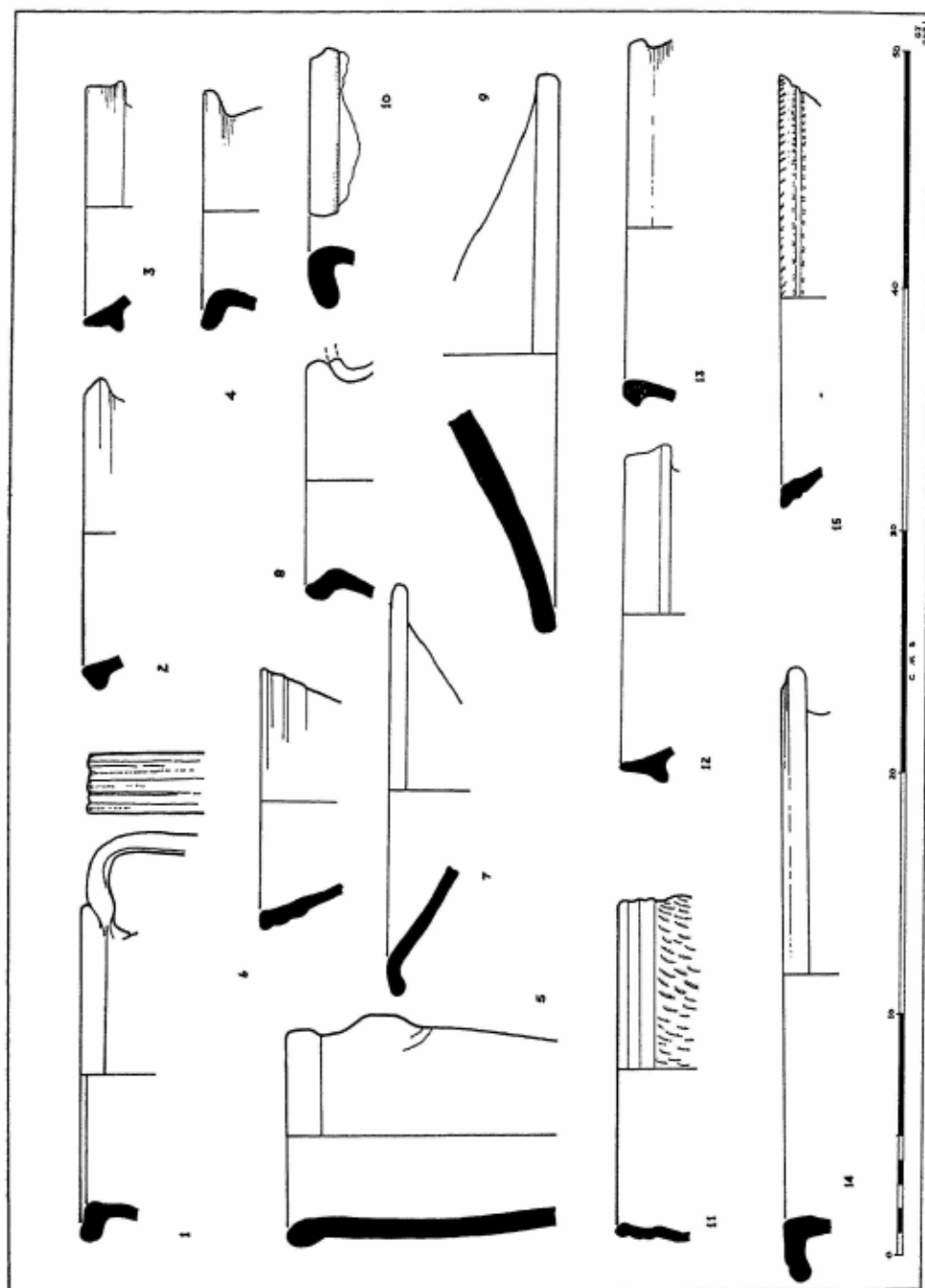


FIG. 21. M. FORCO: POTTERY SECTIONS

Pompeii⁸⁸; this particular *villa rustica* was published with three others from Gragnano and Scafati, all of which contained *dolia* set in internal corridors.⁸⁹

As mentioned above, the small square trench (T.3) to the east of the farm revealed only the edge of the depression in which the first *dolium* was set and the hard-packed surface of the farmyard. This surface continues into T.4, a narrow, rectangular trench set across the hill-crest further to the east. The hard packing of the farmyard could still be traced 30–35 cm. below the present topsoil. The eastern side of the trench also revealed a small rubbish pit (c. 45 cm. deep and c. 35 cm. wide at the top) 1.30 m. from the northern edge of the trench. The contents included some small fragments of tile, but no datable pottery. At the very northern edge of the trench some blocks of clinker were uncovered. They suggest the presence of an outside oven in the farmyard nearby, as was found at site 229 on M. Cupellone (p. 146).

Thirty-five metres west of the farm building the passage of a caterpillar tractor in 1960 had caused the collapse of the roof of a small tomb attached to the farm. This was a fortunate chance because such features are not often located. The tomb was crudely made along the lines of the Etruscan trefoil pattern (fig. 17). It had been cut in the bed tufa with its axis lying at an angle of approximately 315°. From the roughly cut central chamber radiated three small funerary alcoves measuring (from west to east) 0.90 m., 1.30 m. and 1.25 m. in width. The south-western alcove has a depth of c. 1.40 m., the others rather less. About 0.80 m. of the roughly cut *dromos* was also visible. The tomb is of interest not so much because of itself as of the change in burial customs that it illustrates. The spread of farms across the countryside meant that burial in urban cemeteries would involve difficulties and probably run counter to the natural inclination to be buried close to the spot where one had lived. The M. Forco tomb is no odd exception; in the Ager Capenas there are traces of other human burials beside sites 66, 103, 162, 154, 165, 173, 213, 229 and 325.

Finds

Terra Sigillata

Two fragments of *terra sigillata*, were found. Unfortunately both came from the southern side of the building where recent ploughing had destroyed the stratigraphy. They may be dated with some confidence, however, to the pre-Tiberian period.

- (i) Wall fragment with trefoil leaf pattern and row of *ovoli*. Bright, pinkish slip. There is no bead row above the *ovoli* as normally occurs in this ware. The absence of beads appears to be an early feature and has parallels in the work of Bargates, A.D. 1–30 (C. F. C. Hawkes and M. R. Hull, *Camulodunum*, p. 168 ff.). The absence of tongues between the *ovoli* is also a probable early characteristic.
- (ii) Wall fragment with dark-red slip and pattern of rouletted pendant cordons. Probably an example of Loeschke 12, the Arretine prototype of Drag. 24/25 (v. S. Loeschke, 'Keramische Funde in Haltern,' *Mitteil. Alter.-Komm. f. Westfalen*, V. 1909). At Haltern the form appeared to be limited to c. A.D. 1–16.

⁸⁸ *Not. Scav.*, 1923, p. 276 ff., fig. 3.

⁸⁹ *ibid.*, figs. 1, 5.

Coarse Wares

Coarse ware pottery from Italy has received such little study or classification that a detailed description of all the coarse sherds found on or around the site would serve little purpose. Very few fragments were found in a stratified context (the piece of Red Polished ware discovered *in situ* on floor II is the chief exception, v. p. 157) and the occupation periods identified all extend over considerable periods of time. Instead a selection of characteristic wares is set out below and drawn in fig. 21.

- (i) Rim and handle of jug in pink coarse ware. Diam. 14.1 cm. T.1, plus.
- (ii) Bowl in Red Polished Ware. Diam. 13 cm. T.1, plus.
- (iii) Bowl in Red Polished Ware. Diam. 9.8 cm. T.1, plus.
- (iv) Small bowl in orange coarse ware. Diam. 10.1 cm. T.1, plus.
- (v) Neck of jug in cream coated ware. Diam. 8.4 cm. South end of T.3, plus above farmyard.
- (vi) Rim of small bowl in cream ware. Diam. 10.8 cm. T.3, plus.
- (vii) Rim and wall of shallow dish in orange coarse ware. Diam. 16.9 cm. South end of T.3 plus.
- (viii) Rim of small bowl. Diam. 9.4 cm. T.1, plus.
- (ix) Lid of large bowl in brown coarse ware. Diam. 23.1 cm. T.4, plus.
- (x) Rim fragment of large reddish-brown cooking pot. Diam. c. 25 cm. T.1, southern side, plus.
- (xi) Rim and wall of cream ware bowl with indented decoration. Diam. 14.0 cm. T.1, plus.
- (xii) Rim fragment of small bowl in cream ware. Diam. 14.1 cm. T.1, plus.
- (xiii) Rim fragment of beaker in brown coarse ware. Diam. 14.3 cm. T.2, plus.
- (xiv) Rim fragment of mortarium in orange coarse ware. There are traces of burning on the exterior. Diam. 23.8 cm. T.2, plus.
- (xv) Rim fragment of deep bowl in poor quality Red Polished Ware with indented decoration. Diam. 18.1 cm. T.2, plus. Lamboglia type 2; terminal date c. A.D. 200.

Apart from the pottery, four metal objects were found during the course of the excavations: Three of these were nails:

- (i) Nail, bent at end. Length: 5.2 cm. Thickness: 0.9 cm. Diam. of head: 2.0 cm. From disturbed soil above posthole 6.
- (ii) Nail. Length: 6.9 cm. Thickness: 0.9 cm. Diam. of head: 1.4 cm. Found embedded in farmyard at the southern end of the site.
- (iii) Nail. Length: 6.3 cm. Thickness: 0.6 cm. Diameter of head: 1.8 cm. Embedded in farmyard as example above.

The fourth object, like two of the nails described above, was also found embedded in the farmyard beyond the southern wall of the building. It is a curved piece of iron 6.8 cm. long, 1.1 cm. thick and tapering 3.65 cm. to c. 3.00 cm. It probably belongs to an agricultural implement. The gentle curvature of the metal suggests that it may have formed the narrow side of the head of a mattock.

Structure and Date

Reticulate with tufa quoins of the dimensions and character is characteristic of the Augustan period.¹⁰⁰ To this must be added the two fragments of *terra sigillata* found unstratified on the southern side of the building (p. 155). Neither is likely to be later than the early Tiberian period. Moreover, among the pottery a few fragments of black-glazed ware were found on the southern side of the site. This fabric ceased to be made during the period 40–30 B.C. and it is difficult to imagine such vessels surviving in everyday use for more than another decade. This too brings the date down to the Augustan period, more probably to the early part.

¹⁰⁰ For the evidence v. M. E. Blake, *Ancient Roman Construction in Italy from the Prehistoric Period to Augustus*, pp. 253–75 (esp. p. 274); G. Lugli, *La Tecnica Edilizia Romana*, I, p. 506.

In fact, it is tempting to associate the whole structure with the Caesarian programme of veteran allotments that Cicero states was carried out in the Ager Capenas in 46 B.C.¹⁰¹ The structure could belong either to this original programme or subsequent implementation of that policy by Augustus in the early years of his principate.

The length of time for which the building remained occupied raises more difficult problems. The Domitianic *quadrans* (PBSR, xxx, 1962, p. 173) found unstratified on the eastern side of the building shows continued occupation in the late first century. The second of the three floors identified in the internal cross-section (figs. 19, 20) was clearly dated by the fragment of Red Polished ware found incorporated in the pavement level (p. 152). Pottery of this kind (sometimes known as 'terra sigillata chiara'), which imitated the forms of *terra sigillata*, does not appear in Italy before the Hadrianic period.¹⁰² One can safely assume, therefore, on this evidence that the building continued to be occupied during part of the second century, but how long this occupation continued is difficult to judge. The accumulation of packed earth (c. 26 cm.) forming level III could represent the occupation of few or many years, depending on whether the building was used by humans or livestock. The internal divisions (into stalls?) created by the post-holes (p. 153) rather suggests the latter alternative.

The original appearance of the building is not easy to reconstruct. The walls are rather thin to have supported an upper storey and no traces of internal columns strong enough to support a second floor were found. A single storey structure would not have been abnormal and the excavated site on M. Canino (Pt. I, p. 162) did not appear to have had an upper floor, only a storage loft under the roof. The roof of the farm was more likely to have been pitched than flat and it has already been suggested that the second *dolium* uncovered in the farmyard (p. 153) lay 40 cm. away from the farm wall to avoid dripping rainwater. No window glass was found, but this might be due purely to chance. A farmer at the lower end of the agricultural scale with which we are dealing was unlikely to have owned much livestock, but the doorway is wide enough (2.60 m.) to have accommodated an ox, if animals lived alongside humans in the interior. The postholes outside the building probably belong to a lean-to on the eastern side of the farm under which the farmer could keep agricultural implements or shelter livestock. A second-century mosaic from Oudna in Tunisia shows just such a scene with a plough resting against a farm wall and two oxen standing nearby.¹⁰³ The setting of the farm is suggested by another African mosaic from the *trifolium* of a late Roman villa near Tabarka (Thabraca). A shepherdess with a few sheep is shown spinning against the background of a small farm¹⁰⁴ and the discovery of a loom-weight (Pt. I, p. 172) at site 155, the close neighbour of the excavated farm, shows that home-weaving was also practised in the Ager Capenas despite the proximity of Rome. The poorer kinds of Roman farm-buildings in Italy have been little studied but the two mosaics described above, though from a different continent, help to

¹⁰¹ *Ad Fam.* IX. 17. 2 cf. Pt. I, pp. 124, 194.

¹⁰² N. Lamboglia, *Rivista di Studi Liguri*, vii, 1941, pp. 7-22; xxiv, 1958, pp. 257-330, esp. p. 295.

¹⁰³ S. Reinach, *Rep. de Peinture*, p. 390. 1. M. Rostovtzeff, *op. cit.*, pl. XLVII.

¹⁰⁴ S. Reinach, *op. cit.*, p. 392. 3.

reconstruct the setting of everyday life on the M. Forco farm. The tower-shaped rustic house depicted in the 'Casa della Fontana piccola' at Pompeii clearly enjoyed a greater prosperity than site 154 ever did¹⁰⁵ and it is to the Zliten mosaics that one must turn to find parallels to the agricultural life of the small farms of the Ager Capenas.¹⁰⁶

G. D. B. JONES

Postscript: I am grateful to Miss A. Laidlaw of the American Academy for bringing to my attention a discovery that was made after the publication of Part I of this report. It is a Roman chamber tomb uncovered by quarrying on the lower slope of M. Fiore half a kilometre north-east of the site of Fontanile di Vacchereccia (Pt. I, p. 151 ff., cf. fig. 13). The plan of the interior, with five funerary recesses, is in the Etruscan tradition, but the painted decoration of walls and ceiling is in the Roman Second Style. The tomb must date from c. 30 B.C.

¹⁰⁵ M. Rostovtzeff, 'Die Hellenistisch-römische Architektur-landschaft,' *Rom. Mitt.*, xxvi, 1911, p. 95, pl. XI, 1.

¹⁰⁶ S. Aurigemma, *I Mosaici di Zliten*, p. 88, fig. 54. cf. T. Précheur-Canonge, *La Vie Rurale en Afrique Romaine*, p. 27 ff.

WEALTH AND MUNIFICENCE IN ROMAN AFRICA

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Abbreviations

- AE* *Année épigraphique*.
BAC *Bulletin archéologique du Comité des travaux historiques et scientifiques*.
BCB Boeswillwald, Cagnat, Ballu, *Timgad, une cité africaine sous l'empire romain*, 1905.
C *Corpus Inscriptionum Latinarum*, vol. VIII.
 Charles-Picard, *Civilisation* G. Charles-Picard, *La Civilisation de l'Afrique romaine*, 1959.
CSRA R. Duncan-Jones, 'Costs, outlays and summae honorariae from Roman Africa', *Papers of the British School at Rome*, 1962, pp. 47-115.
 Frank, *Econ. Survey* T. Frank (ed.), *An Economic Survey of Ancient Rome*, 5 vols., 1933-1940.
ILAf R. Cagnat, A. Merlin, L. Chatelain, *Inscriptions latines d'Afrique*, 1923.
ILAlg S. Gsell and H. G. Pflaum, *Inscriptions latines de l'Algérie*, 1922 and 1957.
ILTun A. Merlin, *Inscriptions latines de la Tunisie*, 1944.
IRT J. M. Reynolds and J. B. Ward Perkins, *Inscriptions of Roman Tripolitania*, 1952.

THIS paper utilises evidence for the size of public gifts in Roman Africa collected in a previous article¹ to make a series of deductions about the classes from which the gifts came and about the gifts themselves. Because the questions asked here are for the most part different from those considered in the earlier paper, a re-organisation of the material has been necessary, and a table of African donations of known amount is given at the end of the article (pp. 173-5). The sample has been confined as far as possible to material from the period between the accession of Trajan and the death of Gordian III (A.D. 98-244), and gifts clearly belonging to other periods have been omitted.

The topics discussed are, firstly, the distribution of wealth among the monied class; the conclusions are based on observations about the background and nature of Roman munificence, as well as on the tabulation of gift-sizes. Internal evidence suggests that it is, in most cases, legitimate to make rough comparisons between gifts from different points in the period without practical compensation for the effects of inflation.² The second part of the paper contains estimates of the total number of donors in the period discussed; the frequency of donation among the decurial class (i.e. the members of the town-councils); the total sum subscribed in

¹ *CSRA*, *Papers of the British School at Rome* 1962, pp. 47-115. I am much indebted for criticisms and suggestions to Professor A. H. M. Jones, Miss J. M.

Reynolds and Mr. J. B. Ward Perkins.
² *CSRA* pp. 54, 58 and 65.

the form of public gifts in Africa within the period; and the fluctuations in the amount given from reign to reign. The series of estimates depends critically upon assessing the rate of inscription-survival with as much accuracy as possible, and this subject has been discussed in a separate Appendix (pp. 176-7).

I. *The Distribution of Wealth*

In order to justify inferences from the size of gifts about the resources of their donors, two questions must be answered. Firstly, was the size of a public gift generally related in a more or less fixed proportion to the wealth of the donor? Secondly, is the surviving sample of gifts of known value large and comprehensive enough to form a reliable basis for deductions about a whole class of society?

We cannot assume in any individual case that because A's gift was five times larger than B's, A was necessarily richer than B; but probability argues that in such circumstances, A will *tend* to be a richer man than B. When we treat such contrasts *en masse*, and compare, for instance the men whose gifts were larger than HS50,000 with those whose gifts were less than HS10,000 in value, it is fair to assume that members of the two groups were generally differentiated in resources, not merely in their degree of generosity, however much this may sometimes have influenced the gifts of individuals.

There are naturally bound to be some contrary trends: there may have been rich families that did not choose to bid for local standing and prestige on a scale commensurate with their resources; similarly there may have been less prosperous families one of whose members nonetheless chose to spend a large proportion of the wealth of his generation on establishing himself in the public eye by means of donations. Where such groups are concerned, inferences from gift-sizes will give a false picture of the distribution of resources. But it remains unlikely that gifts round the HS10,000 mark will be mainly the work of tight-fisted millionaires, and those round the HS100,000 mark mainly the work of ambitious bourgeois. Inverse proportionality between the size of private resources and those of public displays must be the exception rather than the rule. And in one direction there are definite limits to the extent to which the evidence of gifts can be deceptive: though the millionaire could sometimes confine his donation to something as inexpensive as a statue, and carry liberality no further, it would usually be wholly impossible for the smaller man to aspire to gifts that were within the means of the very rich. We have to remember that the range of African gifts traverses a huge span, and that the largest of those whose value is known was 6,500 times larger than the smallest (see Table below, pp. 174-5).

Internal probabilities do not tell us whether any *close* proportionality between gifts and resources should be assumed. But there is some suggestion that by the mid-second century, if not before, public demonstration of one's generosity was becoming so competitive amongst the municipal class in Africa that the donor was likely to lay out all that he conveniently could on his public gifts. A circumstance mentioned in Apuleius's *Apology* provides an unusually clear illustration of the force of social pressures towards munificence, even outside the sphere of local office. Apuleius tells his audience that he had chosen to marry 'in suburbana villa' rather than in the city at Oea, where his wife also had a house, 'ne cives denuo ad

sportulas convolare', lest the citizens should again assemble to be given *sportulae*.³ Since Apuleius was speaking before a court at Sabratha, he could safely refer to the rapacity of the people of Oea, a city forty miles away. He went on to explain that on a previous single occasion, his wife, whose fortune was one of HS4 million,⁴ had had to disburse HS50,000 (more than 1% of her resources) on *sportulae*, at the marriage of her elder son; this was in the early 150's.

Some African inscriptions also suggest popular involvement in munificence: at Thugga a benefactor promises a building 'postulante universo populo', by popular demand;⁵ at Gigthis and Curubis statues are voted 'expostulante populo'.⁶ And the total bulk of the African material describing gifts, strikingly large compared with that from any other part of the west save Italy, itself leads us to think that public donations had here become intensive and competitive by the mid-Antonine period, when the numbers of gifts begin to reach their height.⁷ It is worth remembering that public munificence almost always took the form of celebrating the donor's tenure of a local office, and that the gift was in fact usually promised before his election to that office. The enormous quantity of substantial gifts cannot be explained merely as a series of massive electoral bribes, but there was probably sometimes an element of vote-catching behind the promises made by candidates for office; hence the failures to fulfil promises within a reasonable time sometimes revealed by the inscriptions and legal texts.⁸ Such delays must often have been the result not so much of bad faith as of miscalculation on the part of the donor about what sum of money he could easily part with; and only in competitive circumstances would men be led to fix the amount of their promises higher than they could afford.

But munificence did not result only from social pressures and political inducements. The genuinely affluent member of the local provincial aristocracy had relatively few outlets for surplus wealth other than public gifts,⁹ except in times of trouble or drought, when estates might come on the market in large numbers. In a fertile province, which Africa undoubtedly was, the land market would normally be more or less closed, estates changing hands only through inheritance and marriage-alliance. We see a vivid illustration in the letter in which the younger Pliny, writing from Bithynia, complains that it is impossible to find an investment for new civic funds, because there are so few chances of buying land.¹⁰ Pliny himself, an Italian magnate of substantial fortune, had the bulk of his money in land, and only a little out at interest.¹¹ Aemilia Pudentilla, the wife of Apuleius, evidently also derived her millions from landed estates.¹² The possibilities for the surplus funds of African families whose horizons did not extend beyond the boundaries of their own province were probably these: useless cash accumulation; conspicuous spending on luxuries, that left no permanent commemoration of the individual; legacies to friends and relations; and public donations that could

³ Apuleius, *Apology* 87; cf. Pliny, *Ep.* X, 116.

⁴ Apuleius, *Apol.*, 77.

⁵ C. 26548.

⁶ C. 11034, 22733, 22743; 24101.

⁷ CSRA, Table II, p. 77.

⁸ Cf. CSRA Nos. 14, 21, 22, 24, 36, 37, 181 and 201, all of which are public promises fulfilled one or more generations later; *Digest* L, 12.

⁹ Cf. Charles-Picard, *Civilisation*, pp. 96-100.

¹⁰ Pliny, *Ep.* X, 54, 55.

¹¹ *Ibid.* III, 19: 'Sum prope totus in praediis, aliquid tamen foenero'.

¹² Apuleius, *Apol.* 93; the 400 slaves mentioned are apparently agricultural, in contrast to the 15 household slaves referred to in 44-45.

perhaps bring advance in status, and would certainly give prestige and a permanent monument in one's native city. It is not difficult to see why members of the moneyed class should thus sometimes have been prepared to devote substantial sums to public causes, granted that this was the form of activity through which a rich family could most easily achieve importance in its town and province.

Lastly, it can be suggested that liberality towards one's town was what distinguished the good citizen amongst men of means. The younger Pliny, who as an important senator was beyond the need to compete for local kudos, was nonetheless enormously generous to his native town of Comum, both during his lifetime and at his death.¹³ In one of his letters, he openly praises a relative for devoting wealth to two successive substantial gifts to his city.¹⁴ At a slightly later date, Fronto, in his defence of a client wrongfully unseated from the *ordo* of Concordia in northern Italy, cites in his favour the fact that he had undertaken legations on behalf of the city at his own expense, a type of claim on public gratitude frequently echoed by the inscriptions.¹⁵ What evidence there is suggests that the rectitude of such participation in local affairs by the rich was felt equally strongly in Africa, at least among the municipal aristocracy below equestrian rank. Apuleius speaks with pride of his father, a man of very substantial means, as holder of all the magistracies at his native Madauros;¹⁶ and Apuleius himself was still one of the decurions of this quite small town¹⁷ at the date of the *Apology* (A.D. 159), despite his successes as a sophist and man of letters. Apuleius also mentions his own generosity, saying that he had made gifts to his teachers, going even so far as to provide dowries for their daughters.¹⁸ Although no public gifts are alleged in his name in the *Apology*, Apuleius's involvement in municipal life was fully sustained by his subsequent tenure of the highest and most onerous of local offices, the *sacerdotium provinciae*.¹⁹

We have cited as causes impelling the rich to munificence social and moral pressures, political and social attractions, and a frequent lack of financial alternatives. None of these indicates that there was necessarily a closely linear connection between gift-sizes and personal resources. The likelihood of individual variants makes it still quite conceivable that in certain cases there were deviations by as much as a factor of five between the gifts that two donors of the same means were able to, or chose to make. But within a large sample, such variants will tend to even each other out. Furthermore, when the total scale of gift-sizes spans a factor from highest to lowest of several thousands, variations of this order have no great significance when the conclusions are to be given in crude terms of percentage aggregates.

It remains to examine the typicality of the sample. It will be seen below that the number of surviving priced gifts represents less than 2%, perhaps even less than 1%, of the total of African public gifts made within our period. Because this

¹³ Of the HS5 million estimated as the total for Pliny's gifts to Comum, at least HS1,600,000 was given during his lifetime (*Ep.* V, 7; Frank, *Econ. Survey*, V, p. 106).

¹⁴ Pliny, *Ep.* V, 11.

¹⁵ Fronto, *ad Amicos* II, 7, 8-9 (ed. van den Hout, 1954, I, p. 182). Cf. *ILS* 6772, 6780, 6927.

¹⁶ Apuleius, *Apol.* 23-24.

¹⁷ S. Gsell & A. Joly, *Khamissa, Mdaourouch, Announa: 'Mdaourouch'*, 1922, p. 18 ff; Apuleius, *Apol.* 24.

¹⁸ Apuleius, *Apol.* 23.

¹⁹ Apuleius, *Flor.* 16; St. Augustine, *Ep.* 138, 19.

proportion is so small, it would be easy to dismiss the sample as being too uncertain a basis for calculations about gifts in general. However, these are not decisive grounds for accepting or rejecting its typicality. There are two real desiderata. The first is heterogeneity: the present calculation concerns a very large area, and in order to claim to represent it, any sample must come from a great many towns of widely differentiated importance; this sample does so.²⁰ Secondly, where arithmetical, the sample must cover its range of numbers thoroughly in order to appear reliable: if every single value that it contains is different, and the range covered shows large empty stretches, it will be unlikely that the sample can be at all typical, granted that it is a low percentage of the whole. But if instead there is a great deal of duplication of values, and a coverage of the whole numerical range without striking gaps, there is a likelihood that the sample will be broadly representative, whatever its size in relation to the whole. In the present case, most of the values are instanced several times over, there being on average more than three examples of every amount included, and there are no significant gaps. Thus, the cross-section seems adequate on both counts.

Serious distortions could still be caused by inconsistencies between donors of different sizes of gift about specifying money amounts: probably no more than a quarter of the gifts of which record survives in Africa contain any mention of their amount.²¹ But mention of amount appears nonetheless to have been a consistent possibility at every level, with few restrictions on the mention of the values of small gifts of the kind that adversely affect the corresponding sample in Italy. In the present case, small gifts outnumber large ones by a very wide margin, which observation suggests to be roughly historical. Duplications are noticeable at every stage: thus there are three gifts of HS400,000, five of 200,000, seven of 100,000, six of 50,000, eight of 10,000, and seven of 2,000, to make selections from different levels (see Table pp. 174-5).

What proportion of the donor's resources did his gifts represent? This question has so far been considered on a purely relative basis, looking only for consistency from man to man. The absolute proportion of resources devoted to public donations is a question of more general interest. There is little evidence that sheds direct light on this question, but it is rather unlikely that donors in any but the rarest cases gave sums so large as to invite serious financial difficulties, despite the well-known story of the grandfather of Dio Chrysostom.²² From Africa there is only Apuleius's claim to have somewhat diminished²³ his patrimony by gifts to friends and teachers; this refers to private, not public gifts, and Apuleius does not pretend to have beggared himself by his generosity.

Though gift-sizes are so well-evidenced, information about personal resources is sparse. Little is known about the average fortunes of the aristocracy at any level. The hundreds of millions owned by senators such as Cornelius Lentulus and

²⁰ See cities listed in *CSRA* pp. 56-61 and 79-108.

²¹ See p. 167, n. 49 below.

²² Said by his grandson to have turned himself from a rich man into a poor one by his liberalities

at Prusa in Bithynia, Dio, *Or.* XLVI, 3; cf. Plutarch *Præc. ger. reip.*, also evidence from the east.

²³ Apuleius, *Apol.* 23.

Seneca²⁴ cannot be regarded as typical, even of the first-century Senate. But it is unlikely that the financial qualifications for membership of the senatorial and equestrian orders (HS1 million and 400,000 respectively) actually represented the ordinary resources of most members of the two classes. The actual needs and resources of senators are probably better illustrated by the series of subsidies granted by the emperors Nero and Vespasian: both these rulers helped out needy senators with annuities of half a million sesterces per year.²⁵ This suggests that a senator resident in Italy during the first century needed a capital of roughly HS8 million;²⁶ even assuming princely generosity, it appears that much more than a single million was needed by those who followed the senatorial way of life.

As for knights, there were certainly some who had little more than the stipulated census of HS400,000,²⁷ but the two second-century examples from Africa show fortunes very much higher.²⁸ There is no apparent reason why these two holdings of several million sesterces should not be representative of at any rate the fortunes of the richer members of this class in Africa. The incomes that they indicate are quite close to the salaries of the higher procurators,²⁹ equestrian employees of the emperor. Lastly, the one fortune belonging to a non-equestrian family that is known in Africa in our period is again counted in millions.³⁰ We can hardly generalise securely from these instances, but it is at least likely that the census requirements of the senatorial and equestrian orders acted more as a safeguard against the entry of those whose resources were ridiculously inadequate, than as a demarcation of the point at which true eligibility in wealth began.

Very rough deductions about the scale of individual expenditure on public gifts can be made if we accept the resources of the three families described by Apuleius as typical of those of the richest of the local aristocracy, and relate the amounts to the largest of the surviving gifts. The four largest gifts of all cannot be considered, since three of them were made by non-municipal donors;³¹ but the social background of the next sixteen largest raises no difficulties.³² The sums range from HS600,000 to 200,000.³³ Relating the median average of these gifts to the resources of Apuleius *père*, a local figure who held all the *honores* at Madauros and is probably representative of the most prosperous local class, a ratio between gifts and resources of HS300,000 : 2 million ensues. This suggests that even at the

²⁴ Pauly-Wissowa, *RE*, IV, 1363; Dio Cassius LXI, 10, 3.

²⁵ Tacitus, *Ann.* XIII, 34; Suetonius, *Vesp.* 17; c.f. Dio Cassius LX, 29, 2.

²⁶ The usual return from land in Italy being 6%, Pliny *Ep.* VII, 18, Columella, *de re rust.* III, 3, 8-13; Pliny *NH* XIV, 56; *CIL* X 114; 5853; *XIV* 367.

²⁷ Pliny, *Ep.* I, 19; Martial V, 27; 38.

²⁸ Sicinius Pontianus, 'splendidissimus eques' of Oea, would presumably have inherited much of his mother's HS4 million, had he outlived her (Apuleius, *Apol.* 62, 77, 97); Herennius Rufinus of the same town, owner of a fortune of HS3 million, was probably the son of a knight (*Apol.* 75).

²⁹ The procuratorial range being HS300,000, 200,000, 100,000 and 60,000.

³⁰ The father of Apuleius bequeathed to his two sons slightly less than HS2 million (*Apol.* 23). The fact that Apuleius held the *sacerdotium provinciae* (n. 19 above) suggests that he may have remained

outside the equestrian class even in his later days of fame at Carthage: only two of the fourteen priests of the province of whom epigraphic record has survived from our period are known to have been knights (*C.* 11546; 16472; cf. *CSRA*, p. 52, n. 13).

³¹ *CSRA*, no. 248 (*procurator a rationibus* under Marcus and Verus); no. 249 (*proconsul* of Asia under Marcus or Commodus; the figure given includes an estimate of HS200,000 for the cost of a temple bequeathed in addition to the foundation whose value was specified as HS1 million); nos. 32-250-382 (*praefectus leg. XIII Gem.* under Septimius or Caracalla).

³² *CSRA*, no. 38 (HS400,000), the gift of a senator, is the only exception, and is omitted from consideration here.

³³ By a rare coincidence, two of the gifts in this range (*CSRA* nos. 28 and 42) were actually made by non-equestrian donors at Madauros, the town to which the Apuleii belonged.

level of society at which families were most likely to have surplus wealth (being rich but without senatorial expenses) the quantity of resources that might be spent on public donations would not often exceed 15% or so. Lower down the scale of wealth, the proportion would often have been smaller.

Considering that spontaneous gifts were free of legal pressures,³⁴ 15% is still a remarkably high proportion, if it is at all typical. But regarded only as deprivation of wealth, and remembering that in the early empire taxes bore lightly on the millionaire class,³⁵ this does not seem enormous when compared with the proportion of a high income that is removed by taxation today.³⁶

In the analysis of wealth-distribution, it is important that the donations considered should all emanate from the same broad class, in this case the local aristocracy. The five gifts by men whose station in life was certainly elsewhere must therefore be excluded,³⁷ as must obviously all those gifts whose total value is not specified (section B of the Table). This leaves 206 gifts or groups of gifts by a single donor, having an approximate total value of HS9,514,703.

The most striking feature is found at the top of the scale: more than half of the total sum was subscribed by only eleven, or just over one-twentieth of the donors (5.34%).³⁸ This is a vivid demonstration of extreme concentration of large-scale surplus wealth in a few hands. Half as much again was subscribed by a further 18 donors,³⁹ who are likewise a small group in relation to the whole (8.74%), though their average size of gift is less than half that found in the first group.⁴⁰ Hence 29, or 14%, of the donors provided more than 75% of the money given in the sample.

Continuing the analysis, the next 29 gifts, as many again as those considered so far, contain a further one-eighth of the total sum.⁴¹ The remaining 148 donors, though nearly three-quarters of the individuals involved, contributed less than HS1 million between them,⁴² just over one-tenth of the money. The main features now being obvious, the sequence of gift-values need not be pursued further. The figures extracted show what huge differences there were in provincial society between the resources of the few richest families and those of the mass of smaller moneyed families.

³⁴ Save the obligation to carry out benefactions promised to the city in honour of local office (*Digest*, L, 12, 1, 1).

³⁵ The highest rate of tax of which there is evidence (under the earlier Empire) is a tax in kind of one-tenth. Death-duty was levied at a flat one-twentieth. A tax of one-hundredth on the rateable value of land is mentioned for Syria (Appian, *Syr.* VIII, 50). The rate of the standard *tributum soli* is not known, but is likely to have been low. Though this was a *pro rata* tax, fixed rate taxes, like the *tributum capitis*, which demanded a fixed sum from every man regardless of his resources, were obviously more irksome for the poor. (Cf. J. Marquardt, *Staatsverwaltung* II, p. 190 ff.).

³⁶ In 1953, 66% of the incomes of those in Great Britain earning over £2,000 per year went in income-tax, and estate-duty was progressive up to

80% of the whole estate (U. K. Hicks, *Public Finance*, 1955, pp. 254-255).

³⁷ See Table below, pp. 174-5; nos. 248 (HS1,300,000), 249 (1,200,000), 32, etc. (750,000), 38 (400,000), 255 (50,000); the donors were respectively a procurator, a senator, a prefect of a legion, a second senator, and a second procurator. Equestrian rank by itself has not been regarded as grounds for exclusion from the decurial sample.

³⁸ The total of the first eleven decurial gifts is HS4,893,500 (since some of the components include estimates, this is an approximation); half of the total sum subscribed decurially, excluding section B on the grounds of imprecision, is HS4,747,201.

³⁹ Who gave HS2,364,000.

⁴⁰ HS131,333 against HS444,863.

⁴¹ HS1,305,955, slightly over one-eighth, which would be HS1,186,800.

⁴² HS930,748.

In interpreting the differences revealed here, it is dangerous to follow the figures too closely. If a gift worth hundreds of thousands is taken as an indication of considerable wealth (as it undoubtedly should be), strict logic would at first demand that the man who could give only a thousand sesterces should be almost a pauper; but in fact there can be little doubt that even those whose gifts were as low as this were comfortably off. The explanation is simple; we are dealing with surplus wealth, not with valuations whose relationship to total resources is constant. The small donor would almost certainly tend to contribute a lower proportion of his resources to public outlays than the rich man, because the ordinary expenses of life would occupy a larger part of his budget. In other words, the large magnate would find that there were eventually limits to the amount that needed to be spent on his domestic arrangements, in the relatively sober cities of the provinces at least, and that he could consequently spend anything that accrued above a certain amount more or less as he chose. The man of moderate means, who had not already got all that he could reasonably wish in the way of houses, estates and slaves, would have a much stronger incentive to hold back his surplus rather than spend it in the public sector. Furthermore, since the rate of the *summa honoraria* was fixed at each city, and not dependent on a sliding scale,⁴³ it would represent a much larger effort for the small man, and would be an effective discouragement to making large spontaneous donations as well.

Because of this variation, it is impossible to make even a speculative translation of gift-sizes into individual fortunes. Nevertheless, the conclusion remains that more than half of the surplus wealth owned by the local aristocracy of Africa in the second and early third centuries was in the hands of a very few families. This is valuable chiefly because it shows that the extreme inequalities of wealth hinted at by the few instances of colossal fortunes in metropolitan society were almost equally pronounced in the local provincial society of at least one part of the Empire.

This development was not entirely haphazard: for extreme differences of wealth were recognised and even propagated by the State. Under the Principate, wealth was the essential prerequisite for all of the higher statuses in public life: entry to the Senate, the *equus publicus*, the judiciary and the municipal *ordo* was controlled in each case by a property qualification; the senator whose fortune fell below the necessary level could even hope for re-imbursement by the emperor. In the army there was wide discrimination between the deserts of officers and men: the pay of a centurion appears to have differed from that of an ordinary legionary by a factor of 16, an enormous difference by modern European standards. The *primi ordines*, the men who had reached the top of the centurion's ladder after decades of fighting, were paid as much again, or 33 times what the legionaries received.⁴⁴ Procurators' salaries were larger still, generally amounting to hundreds of thousands of sesterces.⁴⁵ Highest of all, the proconsular salary was one million sesterces for the year of office, in consular provinces at least.⁴⁶ Yet at the bottom of the scale

⁴³ CSRA p. 66 and n. 53.

⁴⁴ P. A. Brunt, *Papers of the British School at Rome* 1950, p. 71.

⁴⁵ See n. 29 above.

⁴⁶ Dio Cassius LXXVIII, 22. The period referred

to is the reign of Macrinus, but proconsuls were already receiving salaries under Augustus (*id.* LIII, 15, 4-5, cf. Tacitus *Agr.* 42); it is likely that they would always have received an amount considerably larger than that allowed to procurators.

of public pay, minor municipal officials were paid salaries (by prescriptions of the Caesarian period at least)⁴⁷ that went as low as three hundred sesterces per year.

II. *The Scale and Frequency of Munificence*

The second half of the paper attempts to define three functions with as much exactness as the evidence allows:

1. The total number of decurial donors in Africa in the period A.D. 98–244.
2. The frequency of public donation among the decurial class in the same period.
3. The total subscribed and its fluctuations from reign to reign.

1. The number of donors concerned in the priced sample of African gifts (Table, sections A & B) is 254. Five of these were men outside the decurial class,⁴⁸ leaving 249 donors known or presumed to have been decurions. To estimate the total number of gifts, compensation must be made both for the number of gifts that have not survived, and for the proportion of surviving gifts whose value was not specified by their donors. Calculations of the rate of inscription-survival (see Appendix, p. 176–7) suggest that no more than 5%, at most, of the public epigraphy of our period has survived. Thus the figure of 249 decurial donors should be multiplied by a factor of at least 20, producing an interim total (on the basis of priced gifts alone) of 4,980 or more.

The second compensation depends on the ratio of priced to unpriced gifts. Using two sources, a ratio of approximately 1 : 3 seems likely.⁴⁹ Multiplying therefore by a further factor of 4, the final estimate for the number of public donors from the decurial class between A.D. 98 and 244 becomes 19,920, or roughly 20,000. The unavoidable crudities of the method of estimating the rate of inscription survival may have led to significant exaggeration of the proportion which survives,⁵⁰ and so there is a possibility that the actual total of donors was considerably more than 20,000.

2. No estimate of the total number of decurions at African cities has been given in print, as far as is known to the present writer. But a rough estimate can be made from the number of towns known. Most of those whose sites have been identified are collected in Salama's list;⁵¹ they total nearly 500. There are also an appreciable number of towns whose sites only are known, which Salama does not include.⁵² Furthermore, a substantial number of places mentioned in literary sources and non-African inscriptions whose sites have not been identified can also be added to Salama's total.⁵³ An aggregate of roughly 600 towns or centres with urban pretensions can probably be reached. This figure is reasonably close to the

⁴⁷ Since legionary pay was only one-third higher under Marcus than it had been under Caesar, the comparison with evidence of the Caesarian period does not seem ludicrous.

⁴⁸ See n. 37 above.

⁴⁹ The African ratios of priced to unpriced gifts indicated by two different samples are these: dated building gifts suggest 1:3.66 (CSRA Table I, Section A, and Table II, left-hand column, pp. 76–77); the sample of inscriptions in *ILAf* suggests 2.16. The average is approximately 1:3,

suggesting that priced gifts were about one quarter of the whole.

⁵⁰ See Appendix, p. 176–7 below.

⁵¹ P. Salama, *Les Voies romaines de l'Afrique du Nord*, 1951, pp. 119–140.

⁵² See for instance CSRA nos. 13, 16, 24, 47, 57, 58, 110, 165, 168, 202a, 210, 348.

⁵³ See Appendix III in C. Tissot, *Géographie comparée de la province romaine d'Afrique* t. II, 1888, pp. 763–784.

total of towns and *populi* in Mauretania and Africa Proconsularis (including Numidia) listed by the elder Pliny; his total is actually 551.⁵⁴ Although Pliny's list dates from the first century A.D., well before most of the urban development of these provinces had taken place, it is more than likely that the organisational units which eventually became cities, either *de iure* or *de facto*, were mainly those that could be distinguished as *populi* in Pliny's time.

At the accession of Trajan, the number of African cities having an *ordo* of decurions of conventional size would hardly have exceeded 150 or 200, if there were as many as this.⁵⁵ It may be hazarded that by the death of Gordian III in A.D. 244, 350 or 400 of the centres would have had decurions. The estimate has been placed well below the total number of communities: for many of the surviving place-names must refer to settlements that were little more than forts or posting-stations; and some communities, even if large enough to be called towns, probably still possessed no decurial organisation in the early third century.⁵⁶ Conjecture can hardly reveal the rate at which urban institutions of Roman type were adopted between A.D. 98 and 244; but assuming a constant rate, the average figure for the number of towns having an *ordo* of decurions in this period will be $\frac{150+350}{2} = 250$ (selecting the more conservative estimates).

It is uncertain how widespread the standard *ordo* of 100 would have been. We have to bear in mind both the (probable) *ordo* of 30 found at Sigus in Numidia,⁵⁷ and the eight instances of African communities with *undecimprimi*, perhaps governing boards of eleven.⁵⁸ But there is also evidence of massive deviation in the opposite direction at one town, where an *ordo* of 600 is indicated in the reign of Commodus.⁵⁹ In view of these conflicting tendencies, no compensation can be made with any confidence. It will therefore be assumed for purposes of calculation that the usual *ordo* of 100, for which there is independent evidence in Africa,⁶⁰ prevailed throughout the average number of 250 communities having decurions within the period.

Life as a decurion probably lasted on average about twenty years.⁶¹ Our period of 146 years thus embraces approximately $7\frac{1}{2}$ generations of decurions. The total number who sat in the African cities can thus be estimated at $250 \times 100 \times$

⁵⁴ Pliny, *NH*, V, 2-29; it is stated directly that there were 516 *populi* between the eastern boundary of Mauretania, and the western boundary of Cyrenaica; and 27 towns and 8 tribes are listed individually in Mauretania, though there were doubtless others which Pliny does not mention by name.

⁵⁵ Most of the surviving information about conferments of city-status is reproduced in Romanelli's *Storia delle Province Romane dell'Africa*, 1959; but what survives is too incomplete for direct statistical inference. The apparent preponderance of Augustan foundations over the creations of any subsequent reign is in part due to the accident of there being literary evidence for this reign, in some of Pliny's lists in the *Naturalis Historia*.

⁵⁶ Perhaps, for instance, the 'populus Thabarbusitanus', in whose long-winded dedication there is no mention of decurions or of an *ordo* (*AE* 1960, 214).

⁵⁷ *CSRA* p. 70 and n. 67.

⁵⁸ *C.* 7041; 12006; 12302; 12331; 14755; 14791; 14875; 25808.

⁵⁹ At Thuburbo Maius, *CSRA*, pp. 70-71.

⁶⁰ *CSRA* pp. 71-72.

⁶¹ Strict eligibility for the *ordo* began at 25 (*Digest* L, 2, 11). Life-expectancy in pagan Roman Africa has been equated for practical purposes with that shown for India in the census of 1901 (see my 'City population in Roman Africa', *Journal of Roman Studies* 1963, n. 24). In fact more than half of the men alive in India in 1901 could have been expected to die by 45; but in setting the African expectancy at this age at 20 years, I have allowed for the fact that African life-expectancy was apparently better than Indian, especially at the later ages, from the evidence compiled by Burn ('Hic breve vivitur', *Past and Present*, November 1953, pp. 2-31). Something has also been allowed for the fact that those who survived the crucial decade of the 40's very often lived considerably longer.

$7\frac{1}{2}^{62} = 181,250$. Relating this to the total number of gifts estimated above (19,920:181,250), it would appear that on average roughly one decurion in nine would have made a spontaneous gift to his city. Since the number of gifts may be an under-estimate (see p. 167), it is possible that donations were more frequent than this. Diversities of custom are too great for this statistic to have individual relevance to any one town. The figure takes in evidence from a great variety of cities, at some of which munificence would have been more frequent than this, at others very much rarer. Simply as a statistical generalisation, it implies that on average a decurial gift could be expected roughly every two years at any one city.⁶³

This statistic also extends much further the succession of men of moderate means, whose donations formed the bulk of those that appear in the sample of decurial priced gifts (see above, pp. 165-6). Using the present figure as an adjunct to that sample, the few really wealthy donors who gave more than half the sum donated in the decurial sample are seen to be an extremely small element in the decurial class as a whole. Less than 6% of the donors of priced gifts, they are now seen to be probably less than 1% of all the decurions. This is the more striking when it is considered that all decurions (at most towns) were obliged to pay a substantial *summa honoraria* for their seat on the *ordo*, and by implication were therefore men rich enough to achieve this. Surviving amounts asked for the decurionate in Africa range from HS20,000 (at a group of important cities) to HS400 (at what must have been a very small town).⁶⁴ It seems unlikely that as a rule decurions could have been asked to surrender more than 1/10 of their resources in this direction (one to two years' income), and so the fortunes implied by this range of figures may be in the region of HS200,000-HS4,000.⁶⁵ Since the average African *summa honoraria* was in the region of HS5,000-6,000 (probably with little differentiation as a rule between the sums asked for magistracies and that asked for the decurionate),⁶⁶ decurions at many towns would probably have had fortunes of HS50,000-60,000. Thus the millionaires were a minute proportion of a substantial class most of whose members were probably comfortably off.

Nevertheless, the picture of affluence among the decurial class can be exaggerated, even at the time of its greatest prosperity. It would be mistaken to visualise every town organised on the lines of a Latin community as having 100 men all of whom had resources amply sufficient to pay the *summa honoraria* without difficulty. There is enough evidence for dilatoriness about paying these charges on the part of donors,⁶⁷ presumably the richest members of the *ordo*, to make it unlikely that the *pedani*, the rank and file members, always found it easy to meet their financial obligations. At an Italian town there seems even to be evidence of an

⁶² (The average number of cities having decurions at any time during the period) x (the average number of decurions per city) x (the number of decurial generations within the period).

⁶³ Having assumed an average decurial life-span of 20 years, and an average *ordo*-size of 100, there would be a rate of adlection of 5 decurions per year on average, and thus a ninth man roughly every two years.

⁶⁴ *CSRA* nos. 345-348.

⁶⁵ Cf. Charles-Picard, *Civilisation*, p. 119.

⁶⁶ At Cirta there was no differentiation between the *summa honoraria* for the decurionate and that for the magistracies (*CSRA*, nos. 345, 349). At Thubursicu Numidarum, the charge for the decurionate was the same as that for the aedileship, but the charge for the flaminiate was half as much again (*CSRA*, nos. 346, 353, 370).

⁶⁷ *C.* 12058; 20144 + unpublished section; *ILS* 5476; *AE* 1949, 40.

instalment system for the payment of the *summa honoraria* by decurions.⁶⁸ This practice is not evidenced in Africa, but there was wide flexibility here in setting the *summa honoraria* at different levels from place to place,⁶⁹ which was perhaps a result of adjustments intended to expedite payment.

As a final aspect of the social hierarchy, it is worthwhile to consider the numbers of those outside the decurial class. There is unfortunately no obvious basis for a sound estimate of the total population. The figure of 6½ million for the whole of the African provinces (excluding of course Egypt and Cyrenaica) has been put forward independently by two French scholars.⁷⁰ A somewhat higher figure may be more accurate, in view of the size of the modern population, which is about 26 million⁷¹ (of whom only a small proportion are colonists), although there has so far been little widespread industrialisation or technological improvement.⁷² In fact there are strong indications that agriculture and arboriculture are actually now less widespread in some parts of the African provinces than they were in Roman times.⁷³ And to make a comparison, the population of Egypt has now risen to a figure equal to the total for the rest of North Africa, thanks partly to improvements in irrigational technique probably more considerable than any advances so far made in the method of cultivation further west; yet its population in the first century A.D. was already 7½ million.⁷⁴ Comparison with Egypt is pertinent, since Egypt and Africa were the two main suppliers of corn to Rome under the Empire, and thus the two agrarian provinces *par excellence*. From the time of Nero onwards, Africa appears to have supplied two-thirds of Rome's corn, and Egypt one-third.⁷⁵ To make a second comparison, the most authoritative modern estimate for Asia Minor, an area whose conditions in respect of urbanisation were not entirely dissimilar from those of Africa at its zenith, places the population at 13 million.⁷⁶

In view of the evidently striking increase of population in the African provinces during the second century,⁷⁷ a tentative estimate of 8 million may be suggested for the mean total population between A.D. 98 and 244.

The average figure for the number of decurions in the African provinces at any one time has already been placed at 25,000 (see p. 167-8). The ratio of adult males to the rest of the population was probably approximately 1: 2½.⁷⁸ Hence about two sevenths of the total would be men, meaning in the present case a figure of approximately 2,285,000. Subtracting the 25,000 decurions from this total, the

⁶⁸ 'Pensiones plurimas ad quartam usque ob decurionatum dependitne?' (referring to Concordia), Fronto, *ad Amicos* II, 7, 6 (ed. van den Hout, 1954, I, p. 182).

⁶⁹ See the range of values given in CSRA, nos. 345-379, to which add HS5,000 as the *summa honoraria* for the flaminatus at Mustis in Zeugitana in A.D. 238, from an unpublished inscription copied *in situ*, October 1962. Haywood (Frank, *Econ. Survey* IV, p. 77) is mistaken about this office.

⁷⁰ E. Albertini, *L'Afrique du Nord dans l'Histoire*, p. 66; Charles-Picard, *Civilisation*, pp. 44-59.

⁷¹ *Whitaker's Almanack* 1962, under Morocco,

Algeria, Tunisia and Libya.

⁷² Cf. J. Bradford, *Ancient Landscapes* 1957, p. 203: 'The population of Tunisia... is probably still below its total in the best Roman period.'

⁷³ Charles-Picard, *Civilisation*, p. 51; p. 370, n. 29.

⁷⁴ Josephus, *Bell. Iud.* II, 385; cf. Johnson in Frank, *Econ. Survey* II, p. 245.

⁷⁵ Charles-Picard, *Civilisation*, p. 70.

⁷⁶ Broughton in Frank, *Econ. Survey* IV, p. 815; Philostratus speaks of 500 cities in Asia (*Vit. Soph.* II, 3).

⁷⁷ Tertullian, *de anima*, 30.

⁷⁸ See my article cited in n. 61 above.

ratio of decurions to other adult males is thus $\frac{25,000}{2,260,000}$ or 1: 90. If we attempt to omit both slaves and the men whose communities were without decurial organisation for most of the period, the ratio should probably be lowered to 1: 60, if not further; additional compensation, for the fact that decurions were drawn largely from the age-group over 25 (whereas in the main sample all those over 18 are classified as adults) suggests a final ratio of at most 1: 50 for decurions as a proportion of the free men of their age-group (in the aggregate of towns with decurial organisation).

There can be little doubt that the great majority of those outside the *ordines*, free men as well as slaves, must have belonged to the labouring class. This would not be true of large towns, where the standard *ordo* of 100 would not have room for all the landowners. But the intense concentration of wealth in a few hands suggests that at most cities the rentier class would have been small enough for most of its members to be accommodated on the *ordo*;⁷⁹ organisations outside it would tend very often to have an artisan flavour. It is no great surprise that the *curiae* (the associations of limited size of which there were 10 or 11 in many African cities) should prove to have a slightly proletarian character, in the one case where their rules are known.⁸⁰ The members of the *curiae* would nevertheless have been only the upper fraction of those outside the decurial class. The membership of the *curiae* was approximately 600 per town⁸¹ (the numbers apparently being standardised regardless of the size of community); even if all the 600 communities in Africa had possessed curial organisation (which does not appear to have been so), the total number of members would have been only 360,000. Thus the members of the *curiae* probably amounted to considerably less than one-seventh of the total male adult population, though they might form a larger proportion at individual small towns with curial organisation.

Little can be said about the probable resources of the mass of citizens outside the decurial class; the average income would hardly have been as large as the pay of the ordinary legionary (HS1,200 per year until the reign of Septimius Severus). Much of the peasantry must have lived close to the subsistence level, which might mean only HS200 per year, while some tenant-farmers and small landowners would no doubt have had incomes of HS2,000.

3. The total number of donors in Africa in the period A.D. 98-244 has been estimated above as 19,920. This includes only donors from the decurial class, those of a higher status having been omitted from the sample on which the calculation was based. We now have the choice between continuing to restrict our observations to the decurial class, thus working from a sample which is large and homogeneous, and including the five extra-decurial gifts, whose substantial addition to the sum subscribed (an increase of 39%) will produce a much more realistic overall total for munificence in the area concerned. The best solution is to give two separate estimates, the first being for the total number of donors.

⁷⁹ Cf. also A. H. M. Jones, *Recueils de la Société Jean Bodin* vii, 1955, pp. 167-168.

⁸⁰ The rules of the *curia Iovis* codified at Simitthus in A.D. 185 mirror rather crudely those of the funeral college at Lanuvium founded in A.D. 133,

whose members included slaves (*ILS* 6824, 7212).

⁸¹ *CSRA* p. 73 and Addendum; the original hypothesis put forward on pp. 73-74 (suggesting the figure of 100 per *curia*) is probably mistaken.

Restoring the five non-decurions to the base sample, the total number of donors of surviving specified gifts becomes 254, and the total subscribed approximately HS15,108,569 (see Table, Sections A & B). Multiplying this sum by the factor of 80 decided on above (p. 167), we reach a presumed overall total for munificence in Africa in the period 98-244 of HS1,208,685,520, very close to 1,200 million sesterces. Since the estimate of the rate of inscription-survival may be too high (see Appendix), we can only say that the total sum donated in our period probably amounted to 1,200 million sesterces or more. Despite the fluidity of this conclusion, the estimate is more precise than any that could have been reached by mere guessing.

Returning to the purely decurial sample, the total to be worked from is HS11,408,569, contributed by 249 donors. Applying the factor of 80, the total subscribed decurially appears as HS912,685,520, or just over HS900 million; thus the subtraction of non-decurial gifts lowers the total by a quarter, even though the presumed number of non-decurial donors can be no higher than 400 or so, at most, as against a presumed 20,000 or so from the decurial class.

There may well have been considerable overall fluctuations in average gift-sizes from reign to reign, but it is difficult to regard the dated specified gifts that have survived as a guide to these fluctuations, because they are so few. Hence no exact compensation for such changes can be made in reconstructing the course of munificence in our period. Since Romanisation undoubtedly made enormous strides in Africa during the second century, more gifts are likely to have been made in small cities under the Severi than under Trajan and Hadrian;⁸² even if prices were not lower at small places, the size of monument would tend to be more restricted. At the same time, however, the large cities were equipping themselves with bigger and more splendid buildings under the late Antonines and Severi. This itself would have tended to efface some of the building that had taken place under the Flavians and early Antonines; and there is an endemic danger of under-representation of the earlier period in any African epigraphic series, such as that used below.

The only index of the course of munificence that can be applied with any confidence is the series of figures for fluctuations in the number of dated private building gifts.⁸³ Imperial statues, though much more numerous, are a more fickle index, closely related to the personal popularity of the emperor, and to the history of that popularity.⁸⁴ If we apply the ratios of dated privately-financed buildings to the totals for gift-values, the following rough figures result:

REIGNS	Rate per year (overall sample)	Rate per year (decurial sample only)
Trajan	HS45,500,000	34,000,000
Hadrian	94,000,000	69,500,000
A. Pius	120,000,000	90,000,000

⁸² Cf. chronological list of towns yielding specified gifts, *CSRA*, Table I, pp. 76-77.

⁸³ *CSRA* Table II (left-hand column), p. 77.

⁸⁴ The number of surviving inscriptions from African statues of Commodus is so small as to be

almost negligible, although the rate of private building in his reign was very high (*CSRA* Table II, p. 77): plainly statues were more easily disposed of after a *damnatio memoriae* than were buildings, for obvious reasons.

REIGNS	Rate per year (overall sample)	Rate per year (decurial sample only)
Marcus	111,000,000	83,500,000
Commodus	189,500,000	143,000,000
Septimius	180,000,000	135,000,000
Caracalla	223,500,000	168,500,000
S. Alexander	115,000,000	86,500,000
Gordian III	132,000,000	105,000,000

The main drawback of this chronology is that it places a heavy burden of financial implication on quite a small sample: there are 112 African building gifts dated to reigns within the period. The survival of a single further privately-given building from that reign would place the total for the reign of Marcus in this list on a par with that for the reign of Pius, although as the figures stand, a difference in rate of donation of HS10 million per year is alleged. When so much is made to depend on so little, the figures can obviously not be relied on at all closely.

Nevertheless, it is clear that the amount given per year was very much higher under the Severi than under the early Antonines, despite some probable under-representation of the earlier period, due to demolition of monuments on central town-sites for re-development under the Severi or later Antonines. The figures in the right-hand column probably indicate the rough order of size of average annual decurial munificent expenditure in the reigns concerned, though no fine distinctions can be made about slight fluctuations from one reign to the next. The figures in the left-hand column are more uncertain, because of the paucity of non-decurial gifts. Closer conclusions would be dangerous, and the table has been included only in order to indicate the most remote implications of the gift-evidence.

III. *Table of Donations*

The terms on which the table has been compiled are as follows:

1. All known gifts by any one man have been counted together as a single total for his donations to the city. In making individual estimates, allowance has been made in a very few cases (indicated by a +) for the probable cost of gifts whose value was not specified.

2. Only voluntary and spontaneous payments have been included, the *summae honorariae* being omitted, and *ob honorem* payments occasionally being omitted for lack of evidence as to their voluntary character.

3. All payments in which an increase upon the stated amount is referred to without being specified have been relegated to section B of the Table.

4. All gifts known to fall outside the period A.D. 98-244 have been omitted. The inclusion of undated evidence indicates that it is deemed to fall within these limits.

5. It has been assumed for practical purposes that the effects of inflation during the period were not large enough in most African cities for compensations to be needed in order to make comparisons between gifts of different dates (CSRA pp. 54, 58 & 65).

6. It has also to be assumed that the gift or gifts surviving in his name constitute the total of any one individual's munificence. There was a tendency to mention all public gifts that had so far been made by the donor in any inscription recording his generosity (cf. *ILAlg* II, i, 10 & 34); but there are bound to be many omissions nonetheless, due to the survival of inscriptions that belong only to halfway stages of the careers of donors, or due to defective texts. However, there is no reason to think that these difficulties are found only with gifts of a particular size; and hence it is not likely that there will be serious proportional distortions from this source, though it may contribute to an under-estimate of the total volume of munificent expenditure.

The numbers refer to entries in the list given in my "Costs, outlays and summae honorariae from Roman Africa", *PBSR* 1962, pp. 47-115, referred to as *CSRA*.

The asterisk (*) denotes testamentary gifts.

Section A: Gifts whose total monetary value is stated or is within estimation

*248	HS1,300,000	33	77,000	*262	22,000
*249 +	1,200,000	9	70,000	18	21,000
*77	1,000,000	50	70,000	56	20,000
32	750,000	83	68,335	96	20,000
*250		84		405	20,000
382		*11	63,000	68	18,000
*1	600,000	400	60,000	132	
321 +	600,000	*254	60,000	290	
29	400,000	259	60,000	100	16,000
*38	400,000	*286 +		86	14,000
389	400,000	305	52,600	407	12,080
28	375,000	34		21	12,000
399	326,000	*4	50,000	58	12,000
39	320,000	13	50,000	102	12,000
307		78	50,000	*104	12,000
(322)		255	50,000	127	12,000
40	300,000	256	50,000	88	12,000
*63	300,000	327	50,000	139	
*41	272,500	400a	50,000	*263	12,000
*251	200,000	52 +	40,000	59	11,000
*63	200,000	14	40,000	105	11,000
42	200,000	35	40,000	264	11,000
43	200,000	*258	40,000	61	10,000
398	200,000	97	38,000	69	10,000
45	150,000	*79	36,020	150	10,000
67	120,000	98	35,000	*265	10,000
253		93	33,000	*342	10,000
94		*15	30,000	*343	10,000
325	112,000	55	30,000	409	10,000
46	110,000	*54	30,000	410	10,000
*5	100,000	*101	30,000	144	9,400
*6a	100,000	400	30,000	174	
47	100,000	57	25,000	303	
48	100,000	271		23	8,000
49	100,000	66	25,000	70	8,000
85	100,000	*261	25,000	110	8,000
257		284	24,000	111	8,000
*252	100,000	329		112	8,000
4	95,000	391		113	8,000
260		*95	22,000	114	8,000

115	8,000	156	5,000	*109	3,000
116	8,000	158	5,000	*109	3,000
117	8,000	412	5,000	*109	3,000
118	8,000	413	5,000	419	3,000
119	7,340	159	4,800	198	2,642
120	7,100	160	4,800	16	2,500
24	7,000	161	4,500	16	2,400
121	7,000	162	4,400	16	2,400
121a	7,000	163	4,400	16	2,400
122	7,000	164	4,200	201	2,400
123	6,661	165	4,200	268	2,400
124	6,140	74	4,000	202	2,400
125	6,040	89	4,000	16	2,100
71	6,000	176	4,000	16	2,100
128	6,000	*177	4,000	16	2,100
129	6,000	178	4,000	16	2,000
130	6,000	179	4,000	90	2,000
131	6,000	*180	4,000	206	2,000
133	6,000	181	4,000	207	2,000
134	6,000	182	4,000	269	2,000
135	6,000	266	4,000	*344	2,000
136	6,000	267	4,000	421	2,000
414	6,000	416	4,000	208	1,220
*137	5,640	183	3,900	16	1,200
138	5,525	184	3,700	16	1,200
140	5,200	185	3,600	16	1,200
62	5,000	186	3,600	16	1,200
145	5,000	187	3,400	16	1,200
146	5,000	417	3,200	16	1,200
147	5,000	191	3,000	209	1,000
148	5,000	192	3,000	422	1,000
149	5,000	193	3,000	210	900
151	5,000	194	3,000	211	800
*152	5,000	195	3,000	76	500
153	5,000	*196	3,000	212	460
*154	5,000	197	3,000	394	200
155	5,000	418	3,000		
TOTAL = HS13,194,403					
(211 GIFTS)					

Section B: Gifts whose total monetary value is not specified

27	HS400,000	72	15,000	142	5,000
281	200,000	106		166	4,000
36		143		167	4,000
80+	120,000	336+	14,000	168	4,000
189		103	12,000	169	4,000
*82	115,000	22	10,000	170	4,000
65		60	10,000	171	4,000
93	100,000	107	10,000	172	4,000
326		108	10,000	173	4,000
8	70,000	141	10,000	205	4,000
12	50,000	24	7,000	415	4,000
257	50,000	157	7,000	26	3,000
51	40,000	279		190	3,000
53	30,000	126	6,000	199	2,400
17	24,000	25	5,000	202a	2,000
81	21,000	37	5,000	203	2,000
19	20,000			204	2,000

NOMINAL TOTAL = HS1,420,400

Assuming average increase upon stated amount of one-third,
COMPENSATED TOTAL = HS1,893,866 (43 GIFTS)

OVERALL TOTAL (Sections A & B) = approximately HS15,088,269
(254 GIFTS)

APPENDIX

The Rate of Inscription-Survival

A brief attempt at estimating the proportion of African inscriptions that survive from the period A.D. 98-244 has already been made (CSRA pp. 51-52 & n. 13). The conclusion reached there was that less than 9% of the public inscriptions engraved in this period could have survived. Further consideration of the evidence suggests a lower figure as being more accurate.

The basis of the calculation was the division of the number of *sacerdotes provinciae* of whom epigraphic commemoration survives from the period into the total likely to have held office between the dates concerned (146, since the office was annual, cf. C. 14611 "sacerdos . . . anni XXXVIII"). It was assumed that each man who held this office would on average have been commemorated by a single statue at his native town, and no special allowance was made for the one *sacerdos provinciae* known to have been commemorated by five monuments (four having partially survived, and a fifth being mentioned in the inscription from Cuicul, CSRA p. 52, n. 12). Although this one sure instance of multiple commemoration probably belongs to exceptional circumstances (see below), a closer consideration of the remaining *sacerdotes* suggests nonetheless that the estimate of one local monument per priest was too low.

It goes virtually without saying that each town would have given official commemoration in the form of a publicly financed statue in one of its public places to any citizen who rose to the highest local office in the province. Any town could only expect twenty-five or thirty chances of seeing one of its men hold the priesthood during one generation; yet there were several hundred towns in Proconsularis (above, p. 167). It is thus unlikely that a single town would often provide more than one *sacerdos provinciae* within a generation, while many can certainly never have achieved the honour of producing a priest at any stage in the period. Hence it is in no way surprising that six of the fourteen priests whose names survive from our period should be known from official public dedications in their honour (C. 11546; 12039; 14611; ILTun 36; ILAlg I 1295, BAC 1951-2, p. 197 [Mactar]); we can safely assume that all holders of the *sacerdotium* were voted official public statues locally. (They would very likely have been commemorated as a matter of course also in the altar area of the imperial cult, if practice at Carthage followed that at Lugudunum; but no such site has been found, and in any case, mass commemorations at a single town have little bearing on the rate of inscription-survival in the province as a whole).

What would have been less easy to predict is the high proportion of priests whose names have reached us through dedications made by parties other than the order of their native town. Eight of the remaining inscriptions fall into this category (responsibility for ILAf 458, Bulla Regia, being unknown because of an incomplete text). C. 14731 (Ghardimaou) is a dedication by the grandson of a priest to his grandfather; C. 25385 is a public dedication to a priest from Utica made, for unexplained reasons, by a neighbouring *civitas*; C. 16472 (Althiburos) is a dedication by the *curiae* of his town to the wife of a priest; IRT 397 (Lepcis Magna) is an inscription from an exedra dedicated by the priest himself; AE 1949,40 (Cuicul) is the inscription from an arch originally promised by a priest, and actually erected by a descendant after his death; AE 1916,13 (Cuicul) is a family dedication to the grandson of a priest. The commemorations of the Thamugadi priest (of whom more will be said) that have survived from his native town consist of two monuments which he himself dedicated and financed (C. 2343, BCB p. 318).

It would appear from this that there were very strong chances that anyone who held the priesthood of the province would be mentioned in at least one second local dedication from some source. This is as far as one can safely go on the basis of the limited surviving evidence, but nothing absolutely excludes the possibility that the average number of commemorations was higher than two, in which case the rate of inscription-survival would probably be lower than we estimate. It may at least be pointed out that if there were generally more than two dedications in the native city, official dedications would probably be in a definite minority, which does not appear to be the case here (six public dedications against seven others, and one more undetermined). But this is to argue very closely from a small sample.

Discounting the several surviving mentions of the Thamugadi priest and regarding his inscriptions as one, the calculation should be re-phrased thus;

14 surviving commemorations

292 probable commemorations made

probable rate of survival. This leads to the inference that the rate of inscription-survival cannot be estimated at more than 5%; it may be below this figure.

It is difficult to regard the Thamugadi priest, P. Iulius Liberalis, and his five commemorations as typical, for the following reasons. (For references, see *CSRA* p. 52, n. 12). He comes from an area, inland Numidia, whose epigraphy as a whole has probably survived better than that of any other part of Roman Africa; yet only he and two much earlier men from Cuicul (*AE* 1949, 40; 1916, 13) have come down to us from Numidia proper as holders of the *sacerdotium provinciae*. It is likely that his achieving the office was remarkable by the standards of the cities of this area, the more so as Numidia had by his time probably become a province separate from African Proconsularis. Numidia became a separate province in 197/198 (H. G. Pflaum, *Libya* 1957, p. 75); and the absence of the *tribus* from three of the four surviving inscriptions in which Liberalis appears suggests a third century date, as may the outlying position of the fountain which he built at Thamugadi (*BCB* p. 318 ff.). His tenure of the flaminiate at Thysdrus, a large town in Proconsularis more than 200 miles away, may have been the means by which he gained access at this date to the *concilium provinciae* at Carthage, at which the *sacerdos provinciae* was elected. Tenure of office at two inland cities as remote from each other as Thamugadi and Thysdrus is virtually unparalleled in Africa, though there are various instances of offices held at two more or less neighbouring towns (cf. for instance *C.* 2407, at Thamugadi and Lambaesis). Furthermore Liberalis, unlike any other *sacerdos provinciae* of whom commemoration survives from our period, became patron of at least two cities (Cuicul and Verecunda), providing them with a special reason for commemorating him, on which we know that they acted.

These considerations suggest that the circumstances of Liberalis's career were too remarkable for his example to provide a basis for general deductions.

(Dessau's punctuation of *C.* 2343, in reproducing the text as *ILS* 6840, which suggests that Liberalis held not the flaminiate but magistracies at Thysdrus, is shown to be mistaken by the inscription reproduced in *BCB*, p. 318, which is otherwise unpublished. The relevant section of the latter inscription, which comes from Thamugadi, reads: 'F(lamen) p(erpetuus), q(uin)q(uennalis), IIvir, praef(ectus) i(ure) d(icundo), q(uaestor), et in col(onia) Thysdritana f(lamen) p(erpetuus)'. The order of offices, which is in reverse, is probably not strictly chronological, since it is unlikely that the flaminiate at Thysdrus preceded the quaestorship at Thamugadi, a much smaller town).

R. P. DUNCAN-JONES

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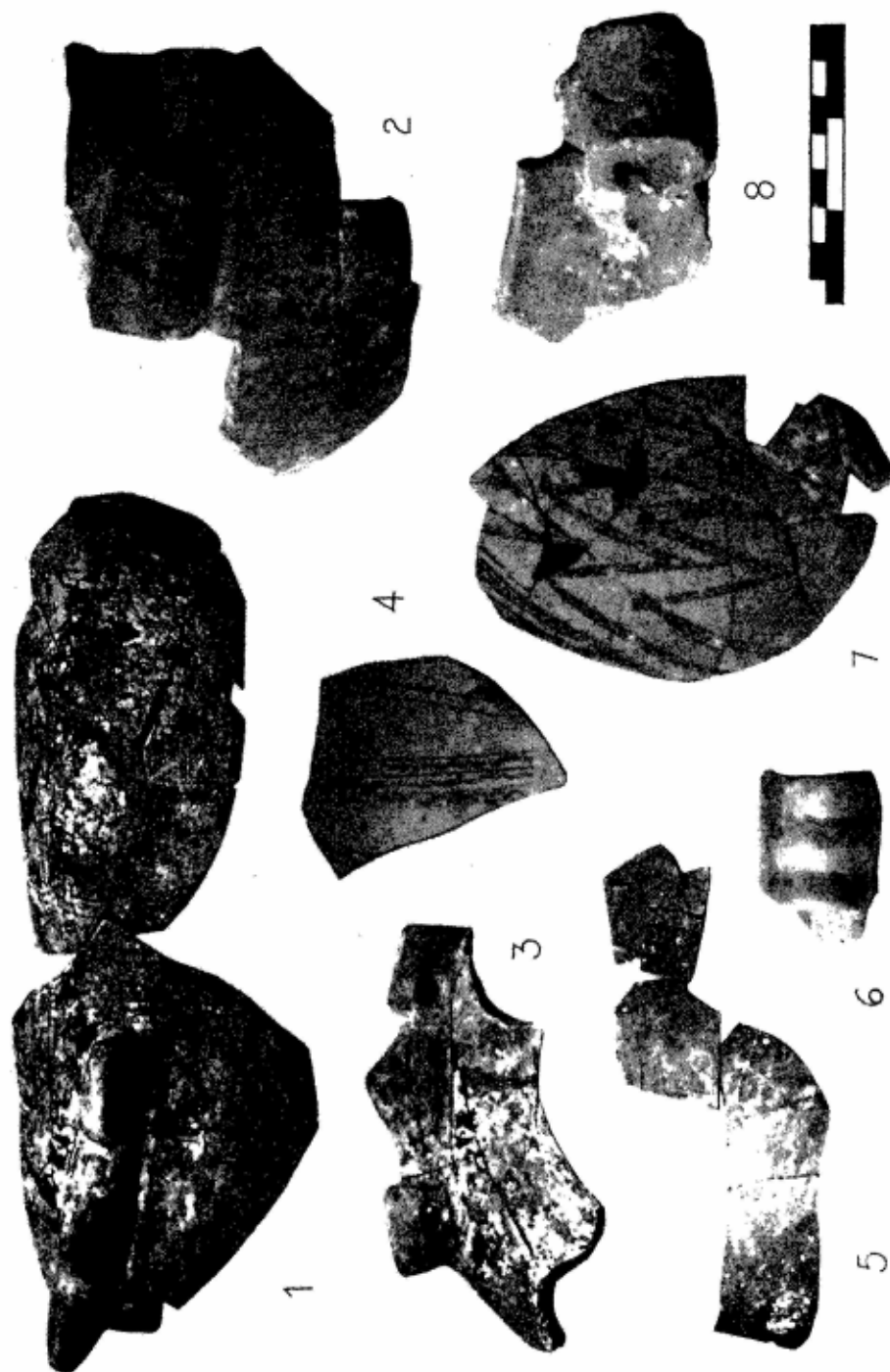
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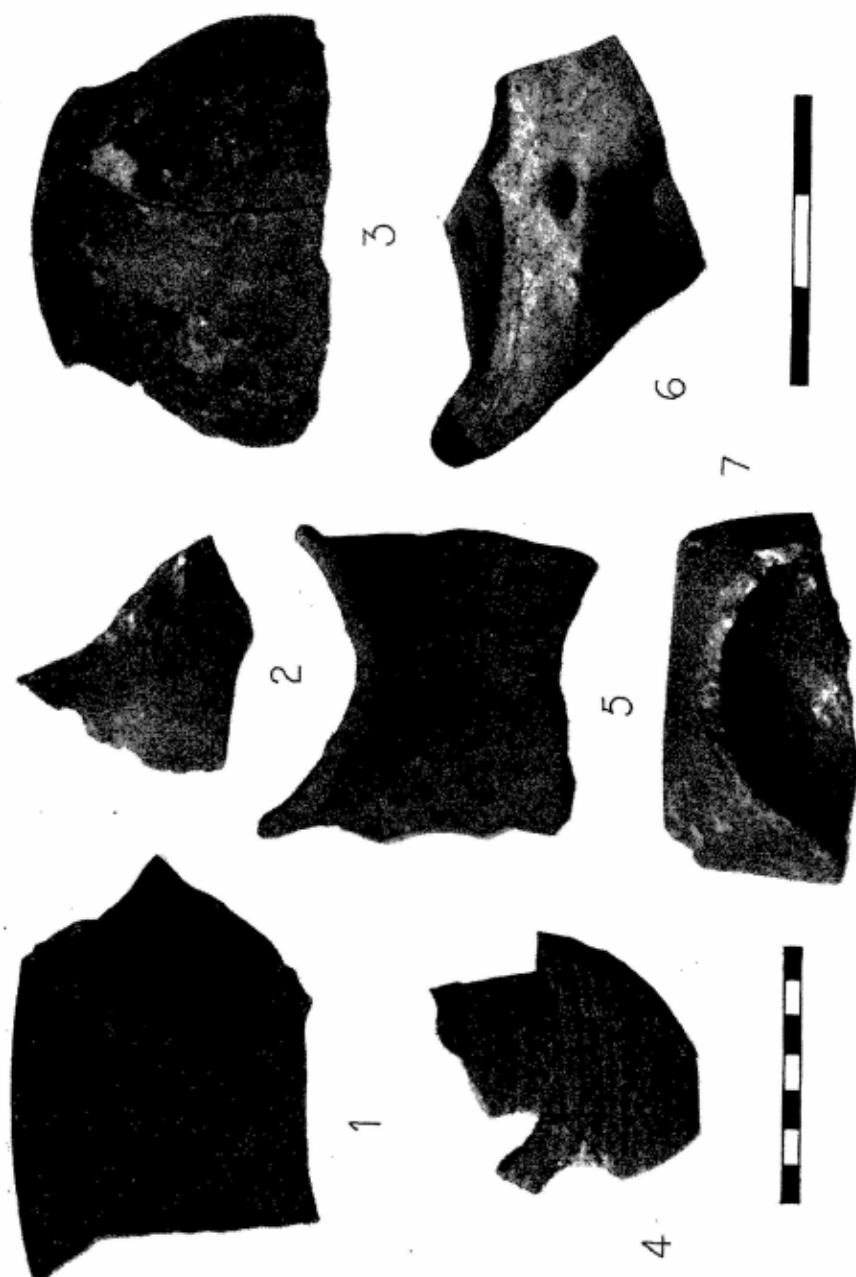
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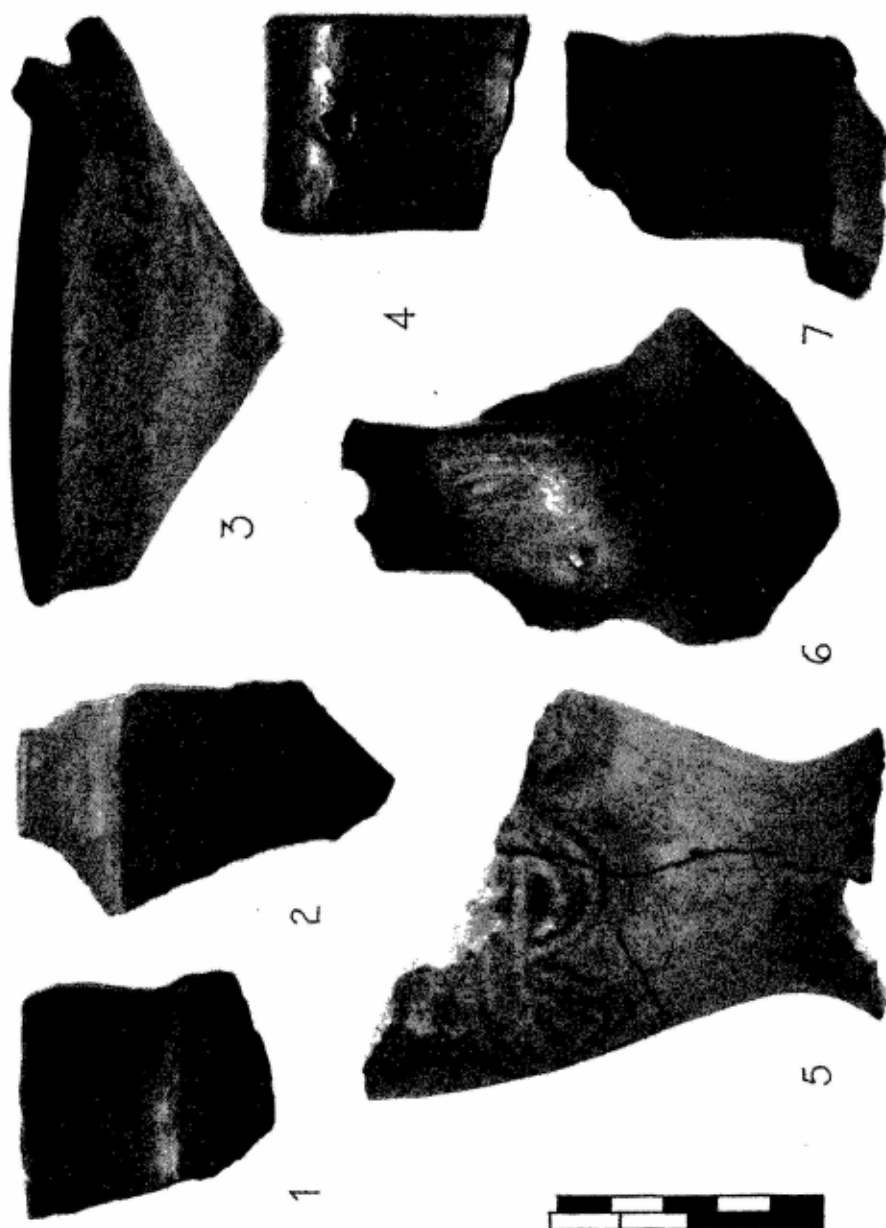
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<i>HN</i> v, 2-29	.	.	168	5795	.	.	86



SERRA D'ALTO WARE FROM TRENCHES IX AND XI, LA STARZA



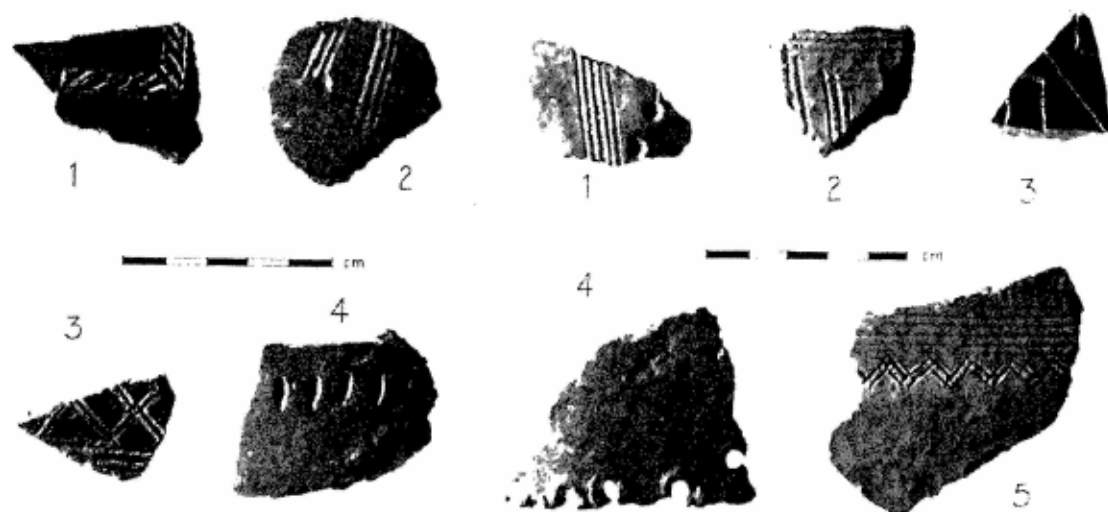
RINALDONE WARE FROM TRENCHES IX AND XI, LA STARZA



EARLY APENNINE WARE FROM TRENCHES III, V AND VI, LA STARZA



FULL APENNINE WARE FROM TRENCHES III, V AND VI, LA STARZA

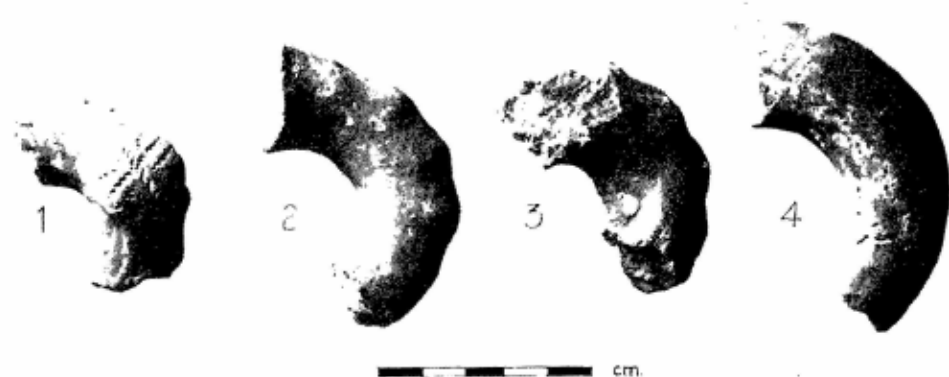


a. DECORATED SHERDS (1-3 VILLANOVAN)
FROM GROUP A1 (p. 39)

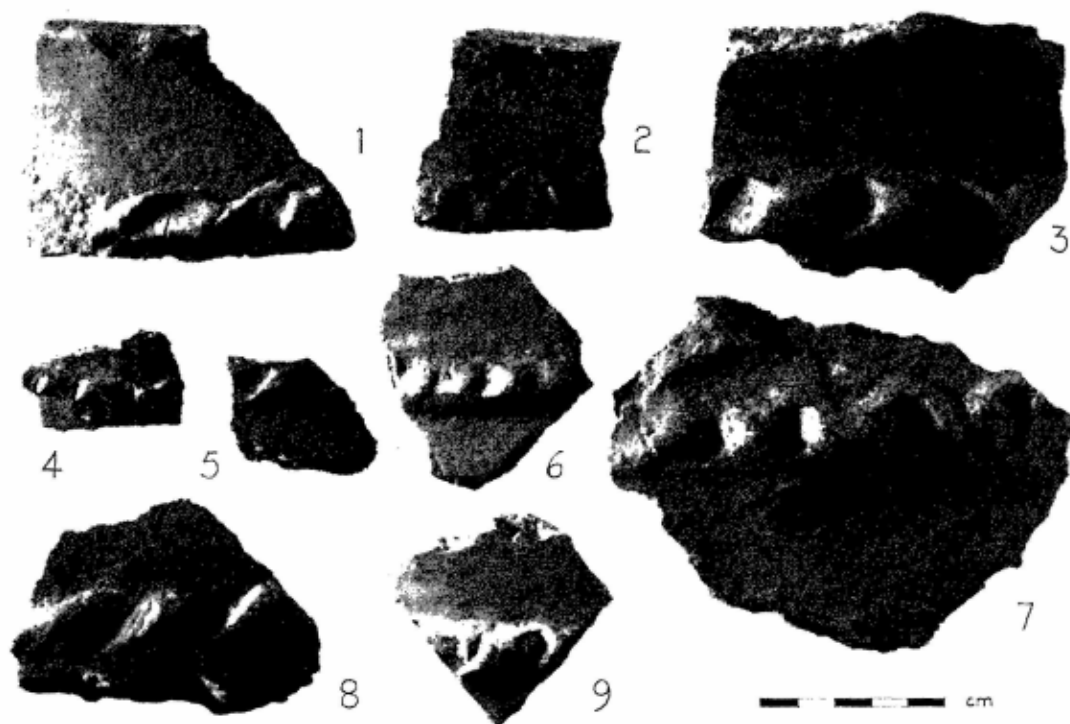
b. DECORATED VILLANOVAN SHERDS AND SHERD (4) FROM
STRAINER, FROM GROUP A2 (p. 42)



c. DECORATED VILLANOVAN SHERDS FROM GROUP A3 (p. 44)



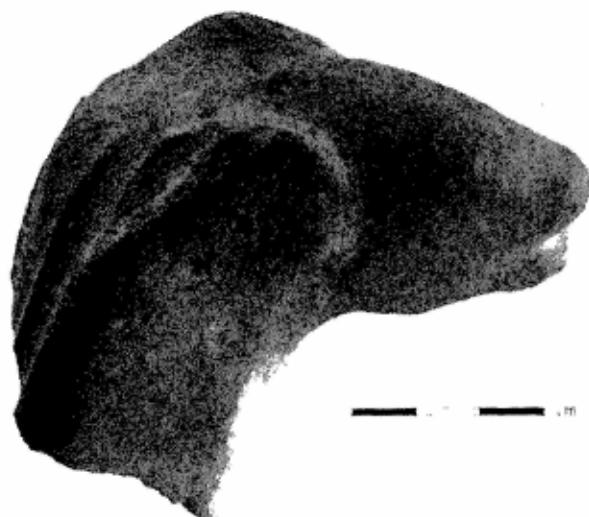
a. EXAMPLES OF FINGER-GRIP HANDLES FROM THE EARLY GROUPS (p. 39)



b. EXAMPLES OF DECORATED CORDONS FROM THE EARLY GROUPS (p. 36)



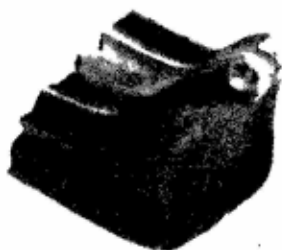
a. TOP OF A CLAY STAND
(p. 64, no. 8)



b. CLAY HORSE'S HEAD
(fig. 23, 2 and p. 64, no. 9)



1

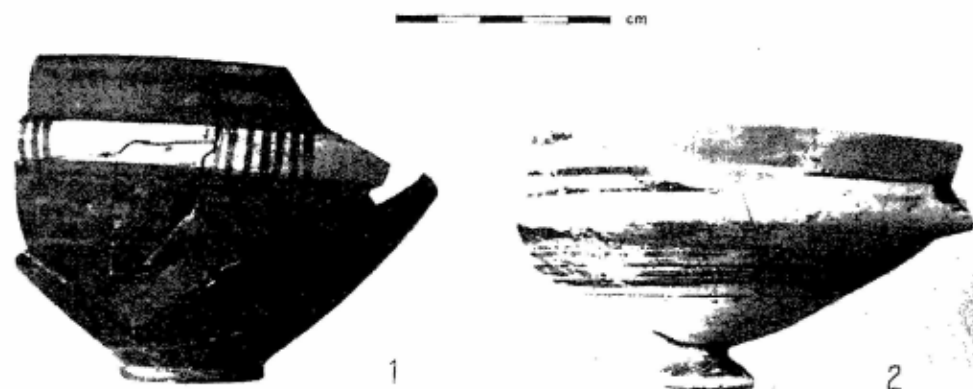


2

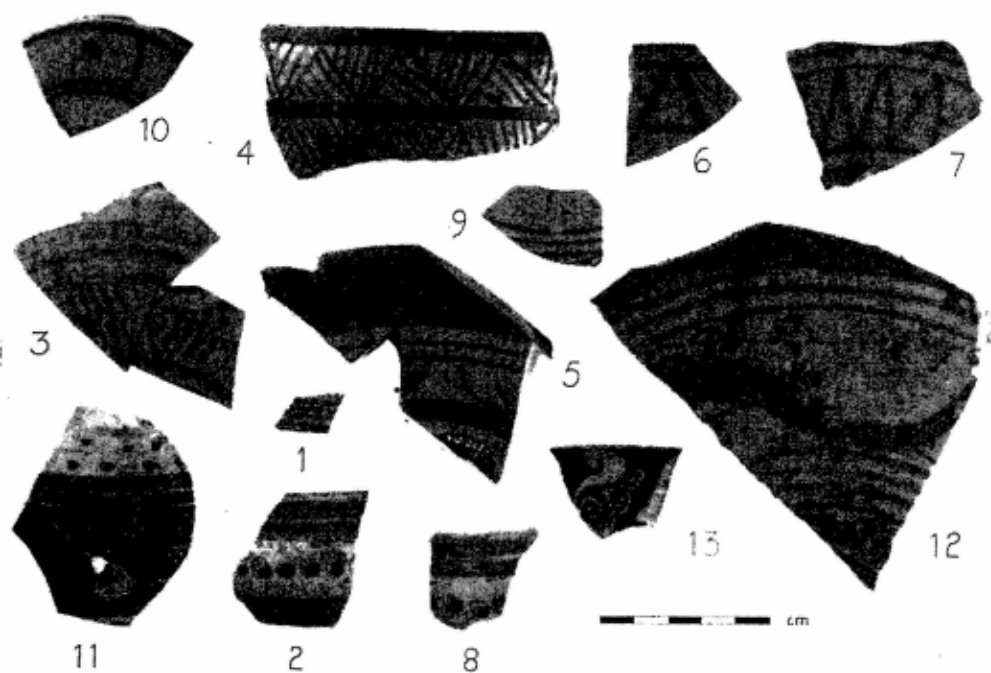


3

c. CLAY STANDS (p. 64, nos. 6, 7) AND HORSE'S HEAD (pl. VII *b.* above)



a. *Skypthoi* FROM PIT 2 (p. 54)



b. EXAMPLES OF PAINTED SHERDS (p. 66)

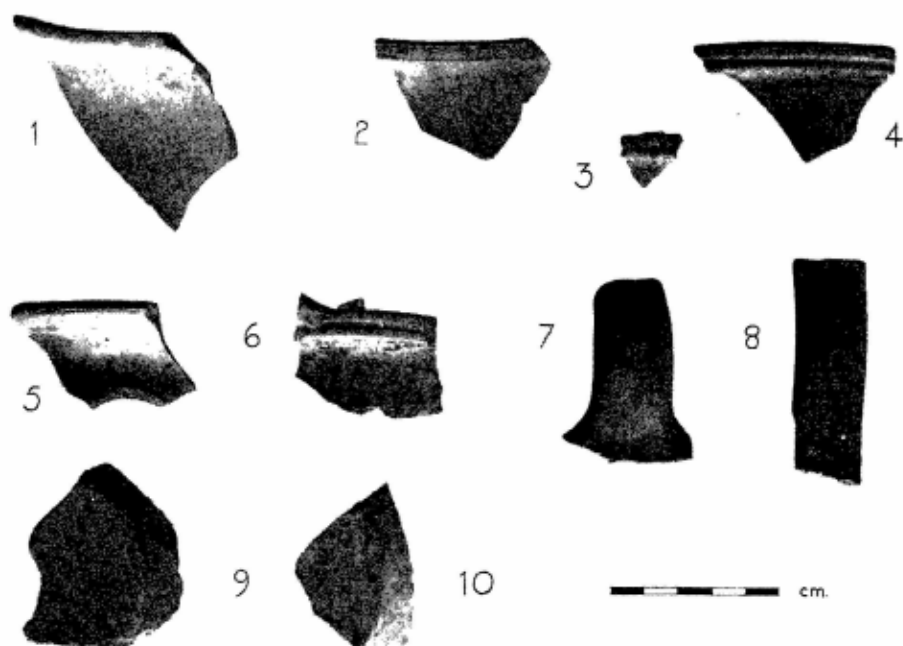


a. EXTERIOR VIEW OF TYPICAL GROUP B, INTERNAL SLIP WARE POT, FROM THE *Cuniculi* (p. 56)



b. INTERIOR VIEW OF TYPICAL GROUP B, INTERNAL SLIP WARE POT, FROM THE *Cuniculi* (p. 56)

VEII, EXCAVATIONS BESIDE THE NORTH-WEST GATE



a. EXAMPLES OF GROUP C SHERDS FROM THE *Cuniculi* AND ETRUSCAN RAMPART (p. 58)



b. EXAMPLES OF GROUP D SHERDS FROM THE *Cuniculi* AND ETRUSCAN RAMPART (p. 58)

VEII, EXCAVATIONS BESIDE THE NORTH-WEST GATE



a. TWO OVEN TYPES FROM THE EXCAVATIONS (p. 68)



b. PART OF AN OVEN OR COOKING STAND FROM GROUP A2 (p. 68).

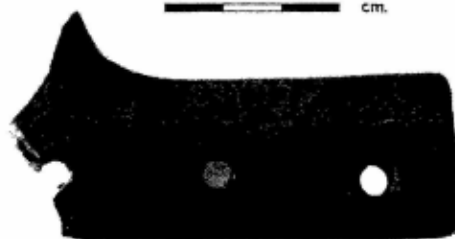
VEIL, EXCAVATIONS BESIDE THE NORTH-WEST GATE



a. HEAD OF BUCCHERO RAM FIGURE
(A) (p. 71)



b. BASAL VIEW OF BUCCHERO RAM
FIGURE (B) (p. 71)

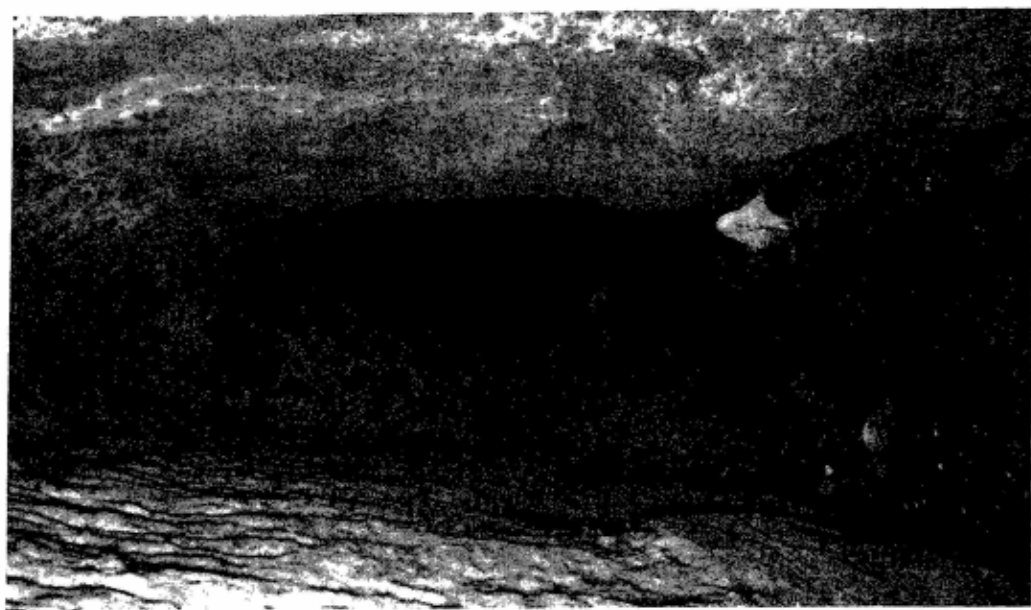


c. BUCCHERO RAM FIGURES (A, B, C) (p. 71)

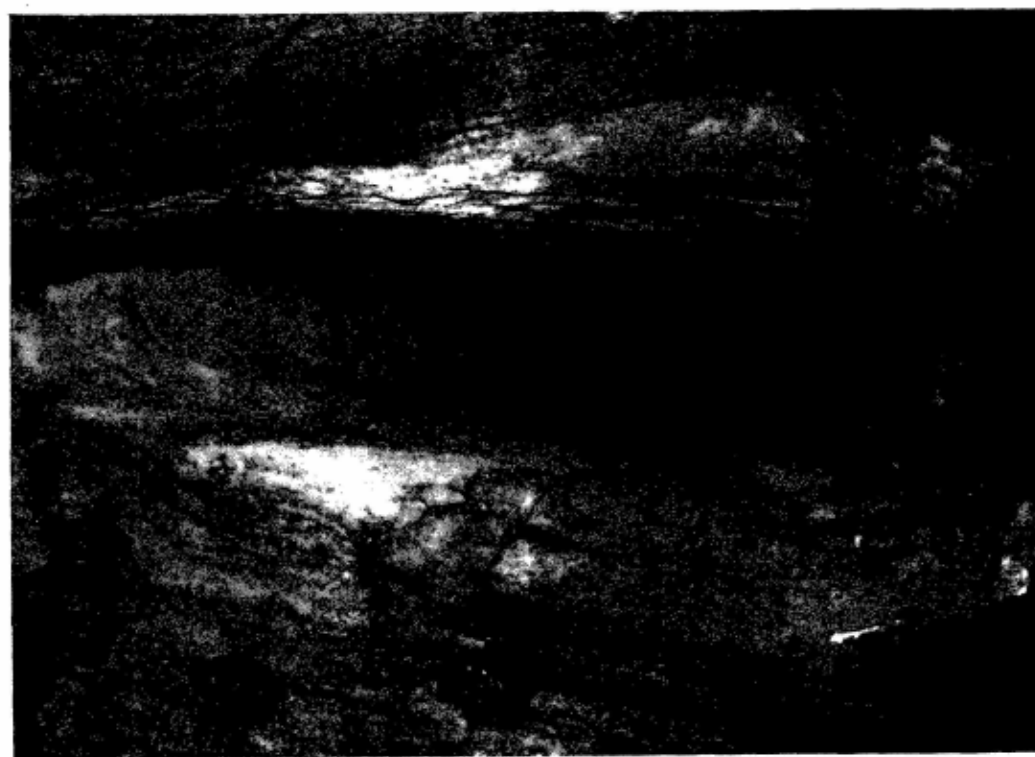


BUCCHERO RAM FIGURE (p. 73)

(G. D. J.)



b. CUNICULUS AT PISCIACAVALLO (Plate XXX, no. 8),
(G. D. B. Jones)
SHOWING JUNCTION OF TWO HORIZONTAL SHAFTS



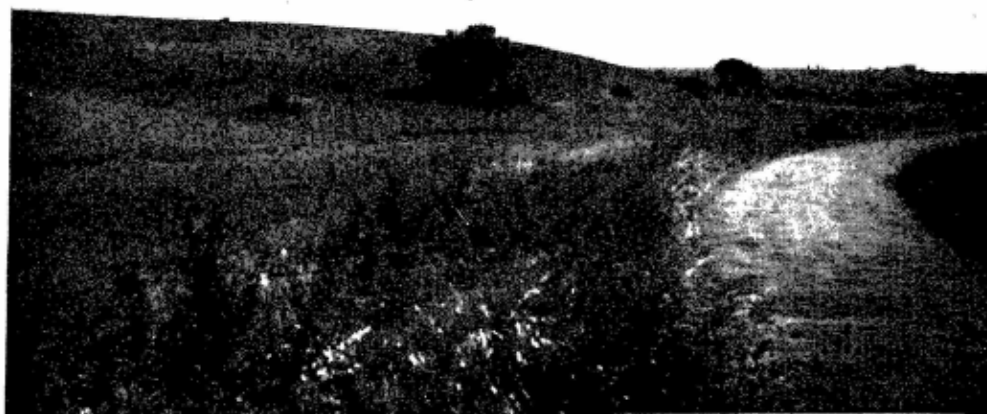
a. CUNICULUS (Plate XXX, no. 20) NEAR CASALE DUE TORRI. IT
(S. J.)
WAS NEVER USED AND LIES ABOVE THE ACTIVE CUNICULUS



a. LONGITUDINAL SECTION OF CUNICULUS (Plate XXX, no. 48) NEAR PRIMA PORTA. (S. J.)
 ARCUATE PATTERN OF PICKMARKS SHOWS TUNNEL WAS DRIVEN FROM RIGHT TO LEFT

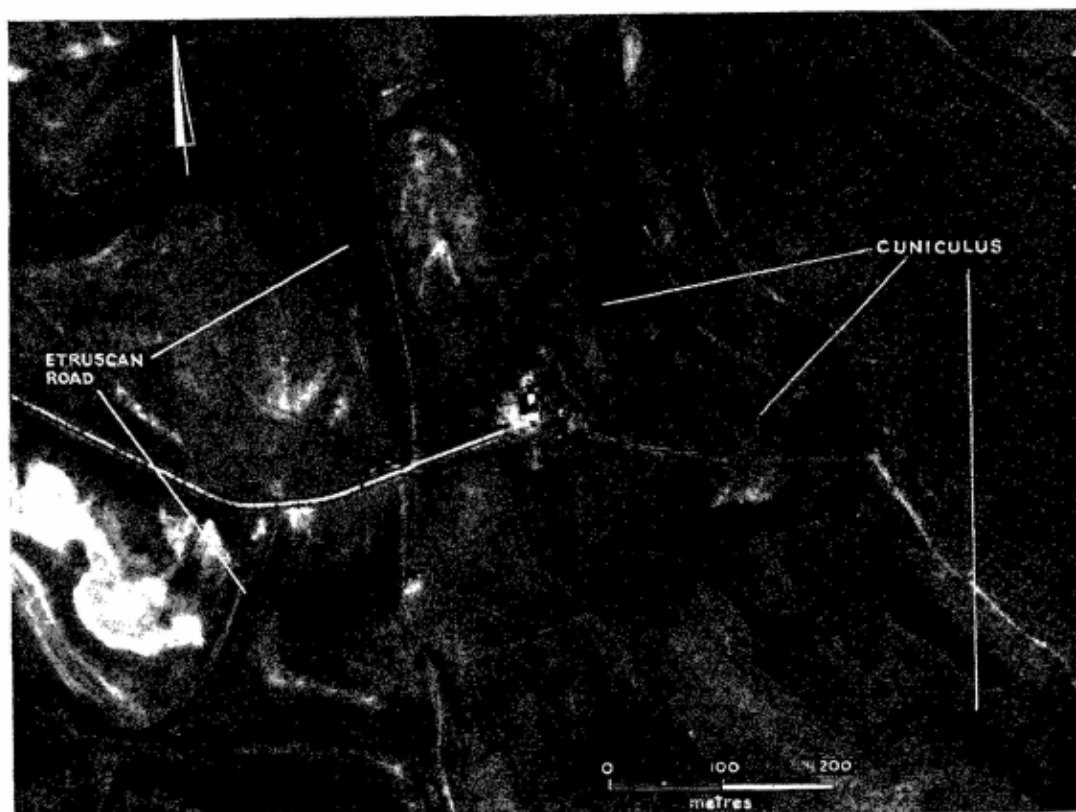


b. CUNICULUS (Plate XXX, no. 20) NEAR CASALE DUE TORRI, LOOKING UP VERTICAL SHAFT. (S. J.)



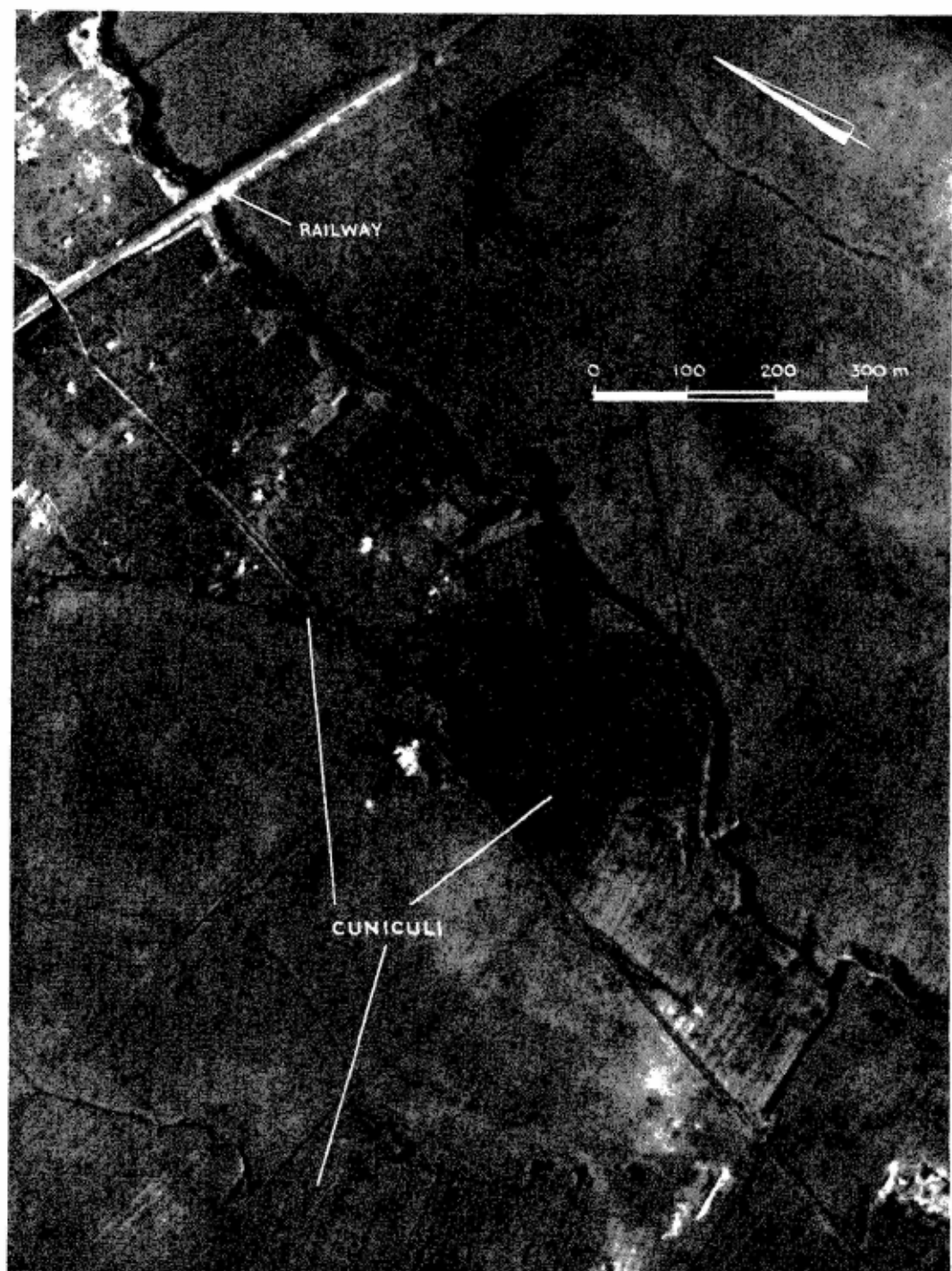
(S. J.)

a. CUNICULATED VALLEY 7 KM. NORTH OF ARDEA. EACH CLUMP OF VEGETATION MARKS THE MOUTH OF A VERTICAL SHAFT



(Aerofototeca del Ministero)

b. CUNICULUS ALONG FOSCO DEGLI OLMETTI, NORTH OF VERRI (Plate XXX, no. 20)



CUNICULI ON THE FOSSE DEL CASTELLO, 3 KM. WEST-NORTH-WEST OF CISTERNA

(Crown Copyright)



a. CAMPOLONGO : CUTTING OF THE VIA TIBERINA (p. 103)

(G. D. B. J.)



b. BADIA : GENERAL VIEW FROM THE SOUTH (p. 104)

(J. B. W. P.)



a. SITE 321: WALLS IN SECTION (p. 105)



b. NAZZANO: THE CASTLE AND S. ANTIMO (*Top left*)



c. GENERAL VIEW OF THE TIBER BEND AT NAZZANO, FROM THE SOUTH-WEST

(G. D. B. J.)

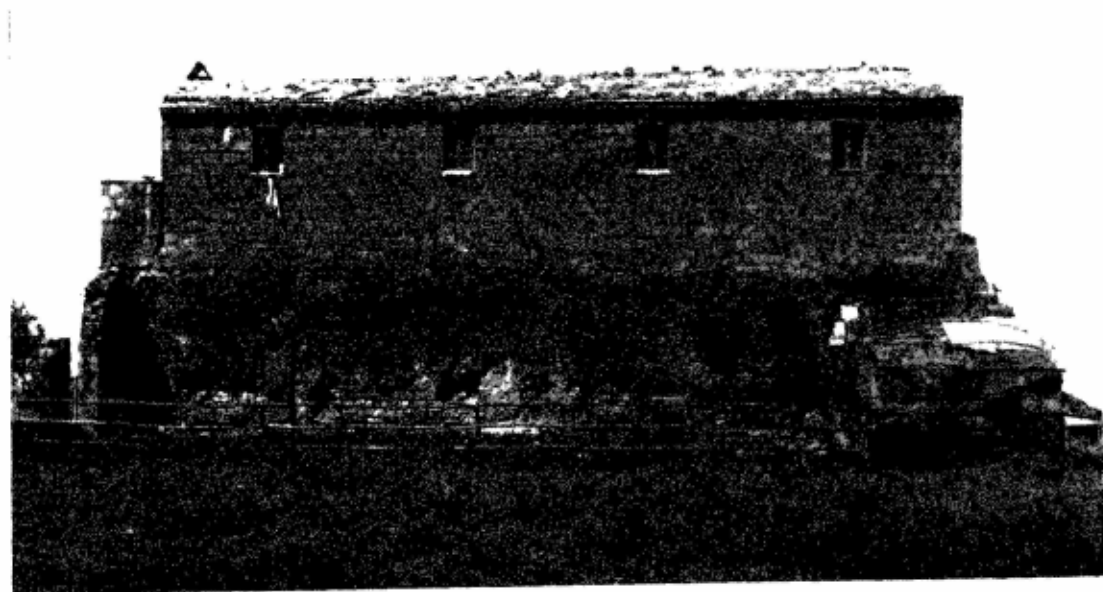


THE BALDACCHINI VILLA : MAIN WALL (p. 110; fig. 2)

(G. D. B. J.)



a. THE TORRITA TIBERINA VILLA : ABUTMENT WALL (p. 111; fig. 3)



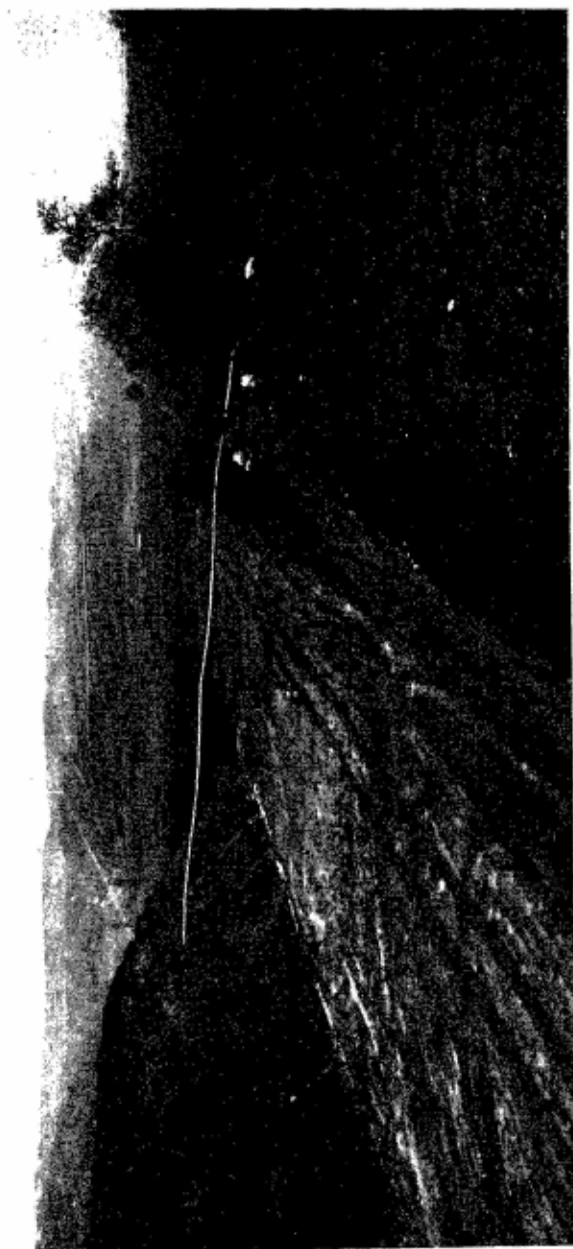
b. CENTOCELLE : ROMAN CISTERN (p. 115; fig. 5)

(Photos: G. D. B., *L.*)



(G. D. B. J.)

VALLE FELICIOSA : GENERAL VIEW FROM M. SORACTE (p. 112)



a. M. RAMIANO : GENERAL VIEW OF PREHISTORIC SITE (*arrowed*) (cf. fig. 6)



b. M. RAMIANO : SELECTED POTTERY (p. 123)

c. M. RAMIANO : SELECTED POTTERY (p. 123)

(Photos: G. D. B. J.)



a. M. SORACTE : OBLIQUE AIR VIEW FROM THE SOUTH (p. 125)

(M. H. B.)



b. M. SORACTE : ONE OF THE FISSURES OF LA VORAGINE (p. 126)

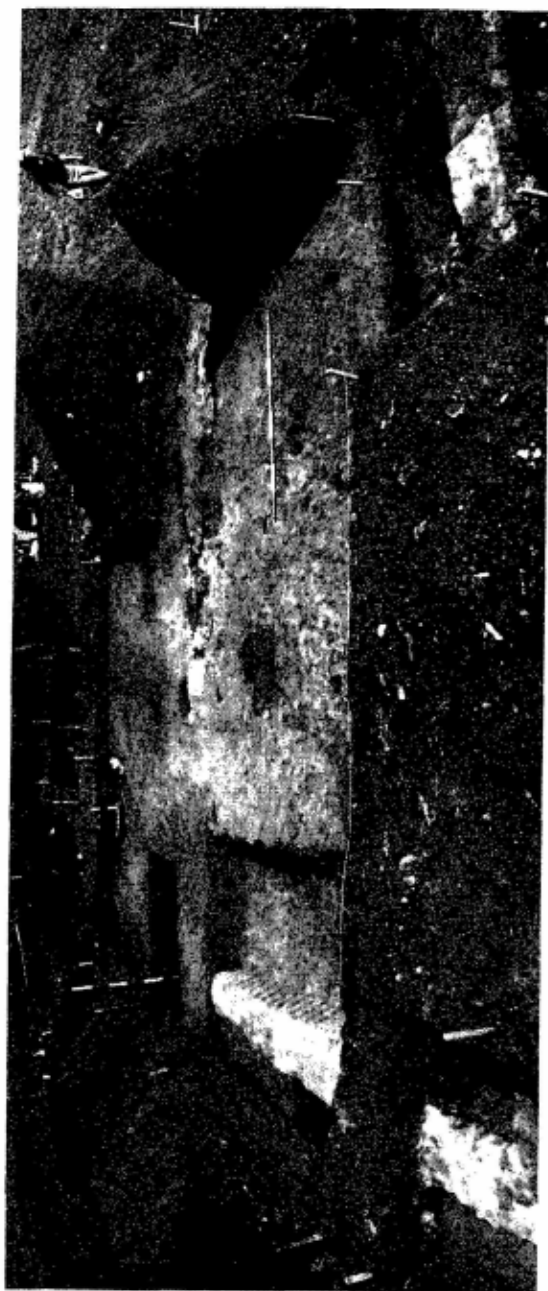
(G. D. B. J.)



M. FORCO : VERTICAL AIR PHOTOGRAPH (Scale : approx. 1:6000) (*Crown Copyright*)

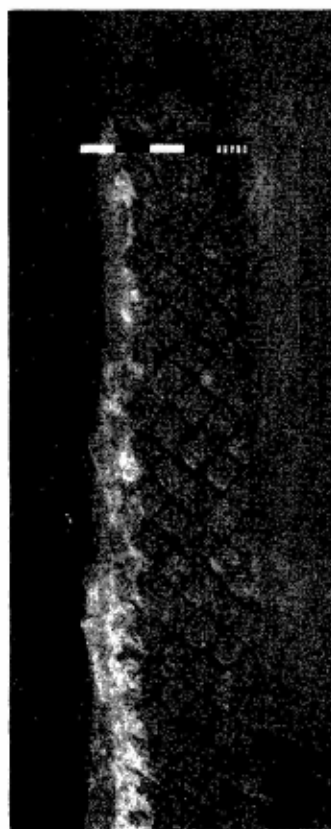


a. M. FORCO, SITE 154: THE SITE BEFORE EXCAVATION, WITH M. SORACITE IN THE BACKGROUND



b. M. FORCO, SITE 154: GENERAL VIEW OF THE SITE AFTER EXCAVATION (p. 147)

(Photos: G. D. B. J.)



a. M. FORCO, SITE 154: RETICULATE WALL (p. 150)



b. DETAIL OF *Opus Reticulatum*

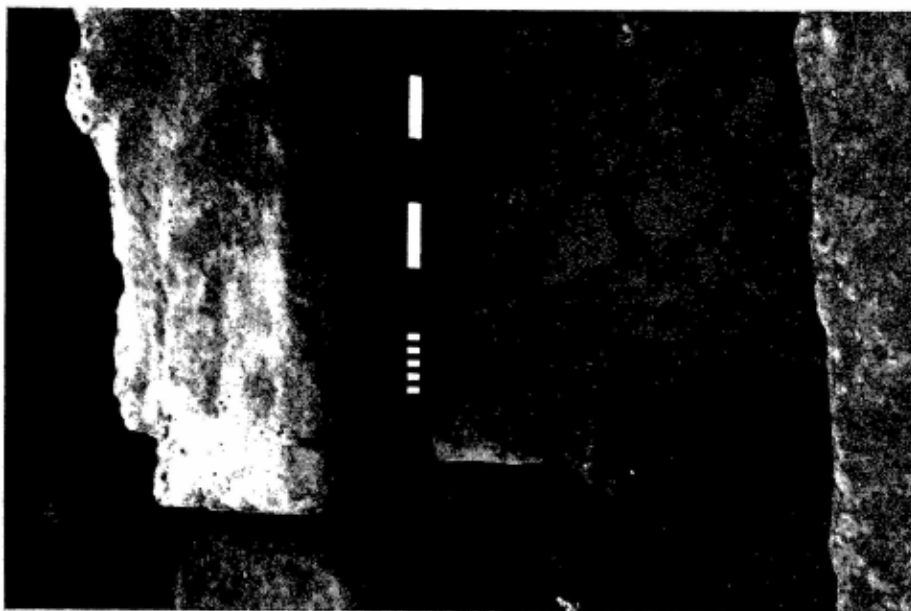


c. NORTH-EASTERN WALL AND BENCH (p. 150)



d. TUFÆ ASHLAR MASONRY (p. 150)

(Photos: G. D. B. J.)



a. M. FORCO SITE 154 : DETAIL OF FLOOR LEVEL II WITH RED POLISHED SHERD (arrowed) (p. 152).

c. (right) DOLIUM IN FARMYARD (p. 153)



b. POST HOLES OF LEVEL III (p. 152)



c.



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